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REPORT

OF THE

HEALTH DEPARTMENT

CITY OF RICHMOND

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ANNUAL REPORT

OF THE

Health Department

OF THE

City of Richmond, Va.

FOR THE

Year Ending December 31, 1917

THE WILLIAM BYRD PRESS, INC., PRINTERS.
1918.

Health Department, City of Richmond

Chief Health Officer,
ROY K. FLANNAGAN, M. D.

Secretary,
Miss M. R. McLaughlin.
Medical Inspectors,
Lieut. Henry S. Stern, U. S. A.,
Lucien Lofton, M. D., Acting.

Tuberculosis Clinician and Diptheria Consultant,
P. D. Lipscomb, M. D.
Assistant Clinician (Voluntary),
R. S. Bosher, M. D.

Fumigator,
Jas. F. Waller.

DIVISION OF VITAL STATISTICS AND RECORDS.

Registrar and Chief Clerk,
E. L. Hasker.

Clerk,
F. W. Robins.

Assistant Clerk,
Marshall Folkes.

DIVISION OF LABORATORY.

Bacteriologist,
Capt. Kenneth D. Graves, U. S. A.
Acting Director of Laboratory,
S. W. Budd, M. D.

Acting Bacteriologist,
Miss Margaret McCluer.
Laboratory Assistant,
William Goode.

DIVISION OF PUBLIC HEALTH NURSING.

Chief Nurse,
Mrs. J. W. Faris.

Miss Edna Berry, Miss L. M. Hundley, Miss Marie Daly,
Miss Ruth Milton, Miss E. G. Friend, Miss Celeste Barrow

DIVISION OF DAIRY INSPECTION.

Dairy Inspector,
T. J. Strauch.

Assistant Dairy Inspector,
R. M. C. Harris.

DIVISION OF PLUMBING INSPECTION.

Plumbing Inspector,
T. M. Landers.

Assistant Plumbing Inspector,
T. W. Mitchell.

DIVISION OF FOOD INSPECTION.

Food Inspector,
E. M. Noble.

Assistant Food Inspector,
C. J. B. Hare.

DIVISION OF SANITATION.

Chief Sanitary Officer,
W. A. Bowry.

R. R. Wrenn, W. A. Crump, J. T. Gill, M. W. Lawrence,
W. H. Mosley, S. A. Hall, T. M. Landers, Jr., John Donati.

District Physicians,
E. T. Rucker, M. D. L. D. Batkins, M. D., B. L. Phillips, M. D.,
Edw. McCarthy, M. D., J. W. Sloan, M. D., H. C. Rucker, M. D.

Custodian Smallpox Hospital,
R. H. Crostic.

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ANNUAL REPORT

REPORT OF THE CHIEF HEALTH OFFICER.

RICHMOND, VA., *February* 15, 1918.

HONORABLE GEORGE AINSLIE,
Mayor of the City of Richmond.

Sir:

With profound respect, I herewith submit for your consideration the forty-sixth annual report of the Richmond Health Department, bearing the statistical summary of the last five months of my predecessor's incumbency and seven months under my own administration.

Any city health officer of the country might well be pardoned a feeling of trepidation at taking charge of a department developed and for eleven years efficiently conducted by such an eminent authority in public health as Dr. Ernest C. Levy. This was distinctly the case with me. Humility and work, however, are not incompatible, and, meeting a desire on the part of the staff to preserve unimpaired the record of the Department, teamwork beyond all praise has been possible. I can therefore, in consequence, bring to you a report showing the lowest death rate ever recorded for the city.

I entered office on May 1, 1917, with the problems of the summer season crowding fast upon the Department. This was manifestly no time to make changes in previous plans, even had such action been desirable or necessary. The logical course of carrying forward with energy the plans already made was therefore pursued. The wisdom of this policy has been demonstrated by results.

At this point it is appropriate to say that the Health Department fully recognizes the obligation it is under to the Administrative Board of the City of Richmond for the co-operation it has given in the development of health work. The public should realize that the Administrative Board is the Board of Health of Richmond. Its control is absolute, and its capacity for hindering unlimited. Since this responsibility is unquestioned, the Board must, in justice, be credited in a large measure with the results. With confidence, I invite your attention to these results, knowing that they set a new and difficult standard in public health for Richmond.

The death rate of a city is the barometer of the Health Department when that Department is supported adequately by city government. This barometer for Richmond records 157 fewer deaths in the city this year than in 1916. Estimating a life at $2,500.00 (one-half that allotted by actuaries), it will be seen that in one year $392,500.00 of values have been saved to this city by this amount of health conservation.

Typhoid fever, which in 1916 showed a death rate per 100,000 of 23.6, shows in 1917 a death rate of 6.9, a difference of 16.7, and lowering the lowest record for Richmond, made in 1915, by nearly half, the rate for 1915 being 12.3.

The average annual death rate for the past five years as compared with the previous five-year period has been lowered this year in all of the following diseases and to the following degree:

Typhoid	12.7
Malaria	7.3
Measles	1.5
Diphtheria	4.1
Dysentery	6.1
Influenza	6.4
Pneumonia	16.8
Diseases of Respiratory Tract, not including Consumption	33.7
Consumption	41.6
Apoplexy	8.8
Diarrhea (under 2 years)	56.3
Diarrhea (over 2 years)	10.0
Suicide	.5
Other Violent Deaths	5.4
Causes Undefined and Unknown	38.7

The only material increase has been in broncho-pneumonia, which was 34.8. There was an increase in Bright's disease of 9.2, in whooping cough of 4.6, and in cancer of 4.1—all diseases which Health Department activities have as yet influenced very little.

No epidemics have visited Richmond this year, due in a large measure, it is thought, to the educational campaign carried on in the schools and to the tightening of quarantine against contagious diseases.

BIRTH RATE.

The birth rate of Richmond shows a slight falling off from last year's figures, being 3,837, against 3,902 in 1916; a loss of 65. Special effort has been made in the last six months to secure full and accurate registration, and we have little reason to doubt the record. There is, however, a slight increase in the number of white male births, there being eight more white boys born in 1917 than in 1916.

MEDICAL INSPECTOR.

The number of cases of infectious diseases in Richmond in 1917, as the death rate quoted would indicate, shows a remarkable decrease. Since there have been no epidemics worthy of the name, the Medical Inspector has made 14,278 fewer visits to infectious cases than were made last year. The following comparisons with the totals of 1916 are very striking:

	1916 No. Visits	1917 No. Visits	1917 Reduction
Typhoid fever	304	98	206
Diphtheria	565	398	167
Scarlet fever	513	139	374
Measles	6785	1520	5265
Chickenpox	155	232	77*
Smallpox	6	4	2
Infantile paralysis	317	7	310
Other visits	622	1358	736*
* Increase. Total	9267	3756	7137
Total reduction in visits			5511

It is a source of great gratification that contagious diseases have been kept within bounds this year. The saving to the citizens in suffering and in medical expense, indicated by the 9,267 fewer visits of our Medical Inspector, is almost incalculable.

LABORATORY.

The departure of the Bacteriologist, Dr. K. D. Graves, for the war (on leave), has necessitated important changes in this division. Dr. S. W. Budd, bacteriologist at the Medical College of Virginia, has been engaged, for part time, as Director of the Laboratory, and the whole time of Miss Margaret McCluer, a trained technician, has been secured for the routine work. This arrangement has been absolutely satisfactory.

There were 4,326 specimens examined by the laboratory in 1917, as against 4,559 for 1916, making a decrease of 233 specimens.

There being no outbreak of typhoid fever, the tests for the diagnosis of this disease fell off 517.

Tests for malaria fell off 221 specimens.

Diphtheria tests, however, increased by 255, though there were 184 fewer cases.

Samples of milk and cream examined totaled 2,139, against 2,176 the year previous.

The laboratory equipment has been improved, and it is planned to increase, during the coming year, the scope of the work done by it so as to include microscopic diagnosis for venereal diseases, now made reportable by physicians to the Department.

During the summer, and continuing until now, arrangements were made with the United States Public Health Service whereby a clinic was established in the laboratory for the administration of free anti-typhoid vaccine to all who applied, the vaccine being furnished by the Hygienic Laboratory, Washington, D. C. Numbers of soldiers and citizens availed themselves of this opportunity for immunization. The Medical Inspector and the Chief Health Officer administered the vaccine. There is little doubt but that this clinic had its effect in the reduction of typhoid fever.

LABORATORY AT SETTLING BASIN.

The report of the Bacteriologist at the Settling Basin, who makes daily examination of the water delivered to the people of Richmond, shows that, notwithstanding the great need for a more modern water plant for our city, an average of 97.9 per cent daily bacterial reduction has been maintained in the water as delivered to the mains. An average of only .2 per cent positive tests of B. coli has been found in 1 c. c. for the year, and only 5.1 per cent in 10 c. c., showing an average of purity which will compare favorably with many cities having much more elaborate purifying equipment.

When B. coli (bacteria found in the excreta of animals) began showing on the daily reports from the Settling Basin with more than normal frequency, the Chief Health Officer urged that the Settling Basin be cleaned, even though the water in the river was unfavorable for such procedure. This was done quickly, with the help of the Street Cleaning force, under Mr. Henry Cohn, and some improvement followed. However, the impurities persisted, in somewhat lessened amount, and the Reservoir basins, which had not been cleaned for seven years, were then treated to a good scrubbing. A large amount of very filthy mud was removed, and since that time the water has been uniformly pure.

DAIRY INSPECTION.

The work of dairy inspection, notwithstanding war conditions, which have threatened very materially the milk supply of all the cities in the country adjacent to cantonments, has been, through the constructive activities of the Richmond Dairy Inspector, kept up to standard, though there has been some reduction in the quantity of milk brought to the city. There has been a net loss of 13 dairies. Twenty-five old dairies discontinued shipping to Richmond and 12 new ones were added to the supply. Six shippers have had their permits revoked by reason of failure to conform to our standards. Four of them, however, have since met the requirements of the Richmond Health Department and have been restored.

2,139 samples of milk have been taken for bacteriological examination, which is an increase of 16 samples over the previous year.

Notwithstanding the insistence upon the high standards of milk production by this Department, the ability and fairness of the Dairy Inspector has so commended him to the men producing milk for the Richmond market that they voluntarily permitted him to fix the price of market milk when the high cost of labor and the cattle foods made it necessary to raise the price, and they have loyally abided by his decision.

Advance in the retail price always causes a decrease in the consumption of milk, and it is this decrease in the consumption that has prevented the loss of 13 dairies to the city's milk supply from being felt in serious fashion.

FOOD INSPECTION.

The work of food inspection has been greatly stimulated during the past year by the adoption of more stringent regulations governing all places manufacturing, selling or distributing food and drink to the citizens. An ordinance has also been adopted, at the instance of the Health Department, requiring all hotels, boarding houses, restaurants, lunch counters, soft drink places, etc., in Richmond to obtain a permit before doing business, which permit is contingent upon their meeting the requirements of the Health Department and may be revoked for cause. A score card has also been devised, which enables the Department to keep check upon all bottling plants. A food inspection card, which admits of a duplicate sheet being left with the proprietor of the place and which bears on its reverse side a synopsis of the rules governing these places, has proven a great success. These rules, together with the detail of a man from the sanitary force to assist in the work of food inspection, have resulted in a vast improvement in the condition of all food purveying establishments.

While the markets are not directly under the Health Department, our Food Inspectors have always endeavored to co-operate with the market clerks in helping to keep them sanitary. At the suggestion of the Chief Health Officer, hot water has been made available, so that there is no excuse for lack of cleanliness. This, together with other changes instituted by the Administrative Board, has resulted in a great improvement in conditions at both markets.

11,098 visits have been made by the Food Inspectors during the year 1917, and since the 1st of June, when our new method went into effect, 5,957 of the places inspected have been passed as satisfactory, and 1,811 required notification. These have since come up to standard.

181,359 pounds of food have been condemned as unfit for use, the market value of which approximates $9,000.00.

353 food permits have been issued and $706.00 turned over to the Treasurer therefor. Only 3 food permits have had to be revoked.

2,566 samples of milk have been sent to the City Chemist for analysis, and 57 other samples of food have also been submitted.

PLUMBING INSPECTION.

Up to September, 1917, plumbing inspections were about on a par with former years. The high cost of building material, plumbing supplies and labor has made itself felt, and new construction has fallen off considerably.

During the year, 470 new buildings were completed, and 990 inspections and tests were made of the new plumbing installed. 1,854 inspections were made of additions and alterations in old buildings—an increase of 490 inspections over the 1916 inspections for this class of work.

At times the work has been so heavy that it has been necessary to detail two plumbers from the sanitary force to help out.

The severe weather during the past two months has had a most disastrous effect upon the plumbing fixtures in hundreds of houses in the city, owing, in most cases, to very poorly protected water supply pipes. There is a law demanding proper protection of supply pipes, but the Inspector in the Watoer Department who was formerly detailed to this work has been withdrawn. Largely as a result of this withdrawal, thousands of dollars' worth of expensive plumbing has been totally ruined and innocent tenants and householders subjected to untold inconvenience. The health bearing which so much broken plumbing has is apparent to all. Several months will yet elapse before repairs due to the freeze will be effected. Some of the trouble, however, has been due to the shallow laying of water mains in annexed territory. An inspection of the older buildings in the city used for school purposes showed that six of them were fitted with antiquated plumbing much the worse for wear. If the health of the children in these schools is to be properly protected, money should be provided to install sanitary fixtures of a modern type.

3,459 plumbing inspections were made in 1917, against 3,619 in 1916—a loss, owing to war conditions, of 160 inspections.

1,380 permits were issued, against 1,368 in the previous year.

There were 470 new buildings completed in 1917, against 707 in 1916.

242 notices were served on owners, and 14 plumbing cases were tried in police court.

INFANT WELFARE AND T. B. NURSING.

The division of the work of Infant Welfare and T. B. Nursing has developed most satisfactorily during the year, necessitating the addition of two more nurses to the staff, and there is much more work in view than these devoted women can do.

There are 2,541 babies now listed under the supervision of Health Department nurses—an average of 363 babies for each field nurse.

Visiting cases with tuberculosis and attending clinic are also part of our nurse's duty, and much instructive work is done in the afflicted families.

During the recent severe weather, the claims on the charity funds of the city became so insistent and heavy that, in order that no one really needing the city's help should suffer and yet no fraudulent claims be allowed, the nurses of the Department were asked, in the emergency, to supervise the appeals in their respective districts. This has been done very effectively, and no proper claims for shoes, coal or other supplies have been denied. It was discovered, however, that many requests for aid came from those who were in no sense legitimate claimants; many of them were purely fraudulent, and others were habitually spending the family income on frivolity and depending in a large measure upon the city for fuel and food. Hundreds of dollars have been saved the city by this supervision. This social service work is of supreme importance, but, manifestly, the infant welfare work undertaken by the Health Department cannot be superseded by it. The nurses are the preventers of infant sickness, the life-savers of babyhood, and they must not permanently be diverted from their purpose.

I suggest that a trained social service worker be attached to the Health Department and paid for out of the charity fund. The cases asking help could then be properly studied and the cure for their dependency found and applied. Many of these poor families could be made self-sustaining and Richmond placed on the road toward a policy of constructive charity—a sadly needed innovation in our city. The nurses of the Department could always be relied upon to aid this work, as occasion required.

13,057 visits were made by the nurses in the prevention of infant mortality.

3,426 visits were paid to cases of consumption, and 1,577 calls were in social service, in connection with the winter's distress; a total of 18,060 visits for the year, not including 784½ hours spent in Dispensary work.

During the year the nurses of the Department have also supervised two Child Welfare Clinics and Milk Stations, one of which was equipped by the Health Department and a nurse provided by the Federation of Mothers' Clubs. The other was equipped and run by the Zionist Institute. There is no doubt but that great good was done by these Welfare Stations. A modification of the same plan will be put into effect the coming summer.

SANITARY INSPECTION.

On July 31, the Department lost the services of an exceptionally faithful and efficient officer when Mr. W. T. Tuck, so long Chief Sanitary Officer, left to engage in private business.

Mr. W. A. Bowry, one of the Sanitary Officers, was chosen as his successor and began at once to show initiative and ability. Under his direction, the work of his division has been completely reorganized. The city has been divided into seven sanitary districts, with an Inspector in charge of each, who is held responsible for conditions there.

An additional Ford Runabout has been granted the Department, and one of the Inspectors, Mr. R. R. Wrenn, has been made Special Complaint man. He, with the active assistance of the Chief Sanitary Officer, attends to all complaints and the placarding of houses for quarantine, leaving the other men free to make house-to-house inspections in their respective districts. This they have done, until the whole city, particularly in its poorer sections, has been covered intensively, and amazing improvement in sanitary conditions is manifest.

One of the Sanitary Officers was transferred to the Food Division, and, as fumigation was discontinued, the Fumigator was assigned to a sanitary district and has abundantly made good. The method of disinfection recommended by the United States Public Health Service of requiring a thorough cleaning following contagious sickness has been adopted by the Department, with satisfactory results. The Medical Inspector instructs the families of the sick and leaves a card of directions with them as to the method of disinfection.

The Chief Sanitary Officer or Complaint Man visits the family when the quarantine period is over, satisfies himself that directions have been followed, removes the placard and then signs the release.

It has been found necessary to add an additional man, Mr. John Donati, to the inspection force, and he has proven exceptionally efficient.

The spirit of co-operation shown by the sanitary force to the present Chief Sanitary Officer is very fine, and by good team work the sanitary condition of the city is constantly improving.

The bad housing conditions in the poorer quarters of the city are the subject of comment by the Chief Sanitary Officer. The bearing of bad living conditions upon the health of the laboring population (white and colored) is so direct and intimate that Richmond should no longer permit the disgrace that rests upon her in allowing such horrid housing conditions to continue as have been shown to the public in authentic manner time and again. An adequate housing law should be passed without delay.

The sanitary force made 55,279 inspections in 1917, as compared with 52,144 in the previous year—a difference of 3,135 visits. 29,214 visits were made during the first seven months of the year, under the previous regime, and 26,505 visits in the last five months—an improvement in monthly average of 1,040 visits—a real achievement.

I wish, particularly, to commend the improved method of monthly reports adopted by the Chief Sanitary Officer.

THE OFFICE.

Since the present Chief Health Officer assumed charge, many changes for the better have been made in the office of the Department of Health. The two main rooms have been painted and kalsomined, and the furniture arranged so as to give better service. A push button, connected with a bell in the laboratory, has been installed at the Clerk's desk, and it has proven a great time-saver. The main entrance has been changed, and the dairy and other exhibits of the Department, with an abundance of free public health literature, 'are displayed in the railed enclosure at the door.

The laboratory, which formerly spread over two rooms, has been rearranged and consolidated into one room, the extra room now being occupied by the nurses and the multigraph outfit.

The services of a Diagnostician for diseases in which there was doubt has been dispensed with, the Medical Inspector and Chief Health Officer doing this work.

Owing to the reduction in the number of cases of disease, no extra medical assistance has been required, except on one or two occasions when the Medical Inspector was absent from duty.

Laboratory material has nearly doubled in price since the opening of the year, but the Department, taking advantage of a three-year contract at old prices which the State Board of Health has with the manufacturers, purchases its supplies through the State Board of Health, thus effecting a large saving. The demands upon the laboratory which the plans for the future contemplate will make this saving decidedly worth while.

PLANS.

In the budget for the coming year's work as submitted to the Finance Committee, aside from an increase in the meagre salaries of the employees of the Department no additions in men or money were asked, except for educational purposes.

Public Health education is the foundation of the control of disease, and the request for adequate funds for this purpose has been in every report of the Chief Health Officer since the Department was established. Richmond should no longer remain content to be the only well organized Health Department in the country without a health bulletin.

Rules have been adopted enlarging the number of diseases reportable by physicians, the enlarged list including the venereal diseases. To adeequately exert control over this, the greatest disease problem that has remained untouched by us, laboratory diagnosis of these diseases must be made available. This we plan to do.

It is the purpose of the Health Department to take full part in the active campaign waged in the city against tuberculosis, and to that end the Department proposes to establish several tuberculosis clinics in widely separated parts of the city, in order to make it easier for suspected cases to secure diagnosis, advice and treatment.

It is planned to attempt a co-ordination of all of the Child Welfare Agencies of the city, that the fight for child-conservation shall be concentrated and definite.

It is planned to take some practical steps towards removing the reproach which rests upon Richmond of maintaining bad housing conditions for its poorer people.

RECOMMENDATIONS.

In a suburb in the northern part of the city, known as Providence Park, which is inhabited mainly by negroes, there has been, for several years past, a heavier proportion of typhoid fever than elsewhere in the city. Eight of the seventy cases of fever credited to Richmond occurred here. There are a number of infected wells in this vicinity, and as wells furnish the only water supply in this section, typhoid must be expected there from year to year unless a pure water be furnished. I strongly recommend that a water main be extended to this point without delay, whatever the cost.

I recommend, also, that steps be taken to carry into effect the Food Inspector's recommendation with regard to meat inspection and a central abattoir. It will be impossible to credit Richmond with a pure food supply if the meat slaughtered by our local butchers remains uninspected at the time of killing.

I recommend that every dairyman or prospective dairyman around Richmond read the constructive report of Dairy Inspector Strauch. It contains a condensed treatise on dairying, which should prove of the utmost value.

I strongly recommend that adequate inspection of water supply pipes prior to installation be put into force without delay. Both the Plumbing Inspector's and the Chief Sanitary Inspector's reports emphasize this need. The neglect of this measure in the past caused untold damage and annoyance to citizens this winter, and the accumulation of nuisances and complaints in consequence almost swamped our inspection force.

Taking up now the detailed facts with reference to Richmond's public health work, I wish to call attention to the completeness with which these figures justify the expenditure of city funds for this Department.

THE GENERAL DEATH RATE.

There were 3,091 deaths in Richmond in 1916, giving a crude death rate of 19.73 per 1,000 inhabitants. Of these deaths, 290 were among non-residents (mainly in our hospitals), giving a death rate among residents of 17.88. In 1917, there were only 2,936 deaths in the city, giving a death rate of 18.50 per 1,000 of population. 251 of these were non-residents, making Richmond's death rate for its own people 16.92 per 1,000—a lowering of our actual death rate of nearly one point under the lowest rate in Richmond's history. It is a far cry from a rate of 22.2 per 1,000 in 1907 to 16.9 today. The following table tells the tale.

YEAR	NUMBER OF DEATHS			DEATH RATES PER 1,000 INHABITANTS		
	Non-Residents Included	Non-Residents Only	Non-Residents Excluded	Non-Residents Included	Non-Residents Only	Non-Residents Excluded
1908	2,486	167	2,319	21.66	1.45	20.20
1909	2,404	219	2,185	20.69	1.88	18.81
1910	2,887	331	2,556	22.57	2.59	19.98
1911	2,718	267	2,451	20.95	2.06	18.89
1912	2,715	290	2,425	20.65	2.20	18.45
1913	2,718	297	2,421	20.41	2.23	18.18
1914	2,658	256	2,402	19,70	1.90	17,80
1915	2,922	268	2,654	18,89	1.73	17,16
1916	3,091	290	2,801	19.73	1.85	17.88
1917	2,936	251	2,685	18.50	1.58	16,92

DEATHS FROM SPECIAL CAUSES.

The crude death rate of a city is not the best measure of a Health Department's efficiency, because there are many very fatal diseases that have not previously been in any degree under health department supervision or control. Among these are pneumonia, cancer, apoplexy, organic heart disease and Bright's disease. Therefore a rise of the death rate from these diseases might conceivably wipe out any gain in control over communicable ills.

A reduction in the preventable diseases is the real index of work accomplished. The following table demonstrates this fact.

CAUSE OF DEATH	ANNUAL DEATH RATE PER 100,000 INHABITANTS		Decrease
	Average 1908–1912	Average 1913–1917	
Typhoid fever	28.1	15.4	12.7
Malarial fever	8.1	.8	7.3
Measles	11.3	9.8	1.5
Scarlet fever	.8	1.6	8*
Whooping cough	19.7	24.3	4.6*
Diphtheria	8.5	4.4	4.1
Consumption	211.0	169.4	41.6
Infantile diarrhea	127.8	71.5	56.3

*Increase

There was a negligible increase in the mortality from scarlet fever, but an increase in the death rate from whooping cough for the five-year period seems to indicate that the fatal character of this disease is not fully appreciated. It will be the care of the Department, during the coming year, to dispel, if possible, this impression by tightening the restrictions in regard to it. It should be remarked, however, that, notwithstanding the heightened average for the past five years, the death rate per 100,000 for whooping cough for 1917 is lower by two points than in 1916 (27.7 for 1917, as against 29.4 for 1916). It will be seen from the above that the communicable diseases are steadily yielding to health department effort at control. This, however, may not be said of other diseases, which are making steady and apparently increasing inroads upon the lives of the people. The following table clearly illustrates this:

CAUSE OF DEATH	ANNUAL DEATH RATE PER 100,000 INHABITANTS		Increase
	Average 1908–1912	Average 1913-1917	
Pneumonia (all forms)	182.8	200.8	18.0
Cancer	81.5	85.6	4.1
Apoplexy	143.0	134.2	8.8*
Organic heart disease	174.6	206.3	31.7
Bright's disease	150.1	159.3	9.2
Violence	129.3	124.0	5.3+

* Decrease.

The combined death rate from the above six causes averaged 861.3 per 100,000 per annum for the first period and 910.2 for the second period. Since the crude death rate from all causes for the first five-year period averaged 2,161 per 100,000 and 1,943 for the second period, these six causes are shown to be responsible for about 40 per cent of all deaths from 1908 to 1912, inclusive, and about 47 per cent from 1913 to 1917.

Pneumonia will be placed on the reportable and quarantinable list for the coming year.

A determined effort will also be made, through educational propaganda and clinics, to induce middle aged but highly useful citizens with weakened arteries and substandard kidneys and livers to take such care of their bodies as will enable the city to continue to have the benefit of their experience and public spirit to a ripe old age.

Table Giving Death Rate from Certain Important Causes, in the City of Richmond, Va., for the Years 1913–1917, Inclusive; the Average Annual Death Rate from These Causes for the Five-Year Period, 1908–1912 and the Five-Year Period, 1913-1917, Inclusive; and a Comparison of the Death Rate for These Two Periods.

CAUSES OF DEATH	DEATH RATE PER 100,000							Decrease or increase in Average Annual Death Rate of 1908–1912 Compared with 1913–1917
	Annual Average 1908–1912	1913	1914	1915	1916	1917	Annual Average 1913–1917	
Typhoid fever	28.1	20.3	14.1	12.3	23.6	6.9	15.4	12.7
Malarial fever	8.1	....	.7	.6	.6	2.5	.8	7.3
Measles	11.3	18.8	.7	....	25.5	3.8	9.8	1.5
Scarlet fever	.8	3.8	1.5	.6	1.3	.6	1.6	.8*
Whooping cough	19.7	12.8	45.2	6.5	29.4	27.7	24.3	4.6*
Diphtheria	8.5	6.0	3.0	3.9	3.2	5.7	4.4	4.1
Dysentery	16.5	15.8	8.2	8.4	8.3	11.3	10.4	6.1
Influenza	25.9	22.5	18.5	23.3	21.7	11.3	19.5	6.4
Pneumonia (lobar or unqualified)	119.5	76.6	90.4	121.5	111.7	113.4	102.7	16.8
Bronchopneumonia	63.3	70.6	90.4	69.8	82.3	77.5	98.1	34.8*
All diseases of the respiratory system (consumption not included)	281.4	231.3	244.6	253.4	268.0	241.3	247.7	33.7
Consumption	211.0	160.7	183.1	170.0	176.8	156.3	169.4	41.6
Other tuberculous diseases	38.1	45.0	36.3	42.7	44.0	36.5	40.9	2.8*
Cancer (of all organs)	81.5	86.3	92.6	80.2	97.7	71.2	85.6	4.1*
Apoplexy	143.0	139.6	126.7	130.0	140.4	134.2	134.2	8.8
Organic heart disease	174.6	209.5	192.7	200.4	201.0	228.1	206.3	31.7*
Bright's disease	150.1	165.9	146.8	165.5	170.4	148.1	159.3	9.2*
Diarrhea (under 2 years)	127.8	84.1	71.9	65.3	65.1	71.2	71.5	56.3
Diarrhea (over 2 years)	32.4	30.8	20.0	21.3	22.4	17.6	22.4	10.0
Congenital debility	112.1	120.1	114.1	104.1	119.3	115.9	114.7	2.6*
Suicide	12.6	19.5	10.4	12.3	8.3	10.1	12.1	.5
Legal electrocution	5.9	10.5	6.7	7.1	5.1	3.2	6.5	.6*
Other violent deaths (non-suicidal)	110.8	113.4	138.6	110.6	82.3	81.9	105.4	5.4
Cause of death ill-defined or unknown	64.6	23.3	33.4	29.7	19.1	23.9	25.9	38.7
Total deaths all causes:								
Non-residents included	2,161	2,041	1,970	1,889	1,973	1,850	1,945	216
Non-residents excluded	1,967	1,818	1,780	1,716	1,788	1,692	1,759	208

* Increase.

All death rates in the above table are calculated from the official census of 1910 and the postcensal estimate of the United States Bureau of the census for intercensal years.

TYPHOID FEVER.

The following table, showing the annual number of deaths from typhoid fever for the past thirty-eight years, tells a most remarkable story, and the record for 1917 is the most remarkable of all:

YEAR	DEATHS FROM TYHPOID FEVER		YEAR	DEATHS FROM TYHPOID FEVER	
	Number of Deaths	Rate Per 100,000		Number of Deaths	Rate Per 100,000
1880	49	77.0	1900	88	103.3
1881	79	120.9	1901	49	56.6
1882	64	95.4	1902	63	71.6
1883	59	85.6	1903	64	71.7
1884	133	188.1	1904	47	51.8
1885	51	70.4	1905	40	43.5
1886	36	48.5	1906	41	43.9
1887	52	68.4	1907	47	41.4
1888	56	72.0	1908	57	49.7
1889	68	85.4	1909	28	24.1
1890	76	93.4	1910	28	21.9
1891	74	90.6	1911	23	17.7
1892	80	97.4	1912	22	16.7
1893	75	91.0	1913	27	20.3
1894	42	50.7	1914	19	14.1
1895	69	82.9	1915	19	12.3
1896	45	53.8	1916	37	23.6
1897	37	44.1	1917	11	6.9
1898	42	49.9			
1899	49	57.9			

The annual number of deaths from typhoid fever and the annual death rate per 100,000 inhabitants are combined in the following table giving the average annual number of deaths and death rate in five-year periods:

PERIOD	AVERAGE ANNUAL MORTALITY FROM TYPHOID FEVER	
	Number of Deaths	Rate Per 100,000
1880–1884 (5 years)	76.8	113.4
1885–1889 (5 years)	52.6	[illegible]9
1890–1894 (5 years)	69.4	84.6
1895–1899 (5 years)	48.4	57.7
1900–1904 (5 years)	62.2	71.0
1905–1909 (5 years)	42.6	40.5
1910–1914 (5 years)	23.8	18.1
1913–1917 Last 5 years	22.6	15.4
1917	11.0	6.9

Eleven people, including non-residents, died of typhoid fever in Richmond in 1917, giving a death rate per 100,000 of population of 6.9 as against 37 dying in 1916, giving a rate of 23.6— a difference in favor of 1917 of 16.7, and lowering the lowest death rate ever recorded for the city (12.3 in 1915) by 5.4 in the 100,000.

TYPHOID FEVER IN RICHMOND IN 1917.

	White	Colored	Total
Cases brought over from 1916	2	0	2
Total number of cases	69	29	98
Total number treated during 1917	71	29	100
Cases probably contracted in the city	46	24	70
Cases contracted out of the city	23	5	28

DEATHS FROM TYPHOID FEVER IN 1917.

	White	Colored	Total	Death rate per 100,000
All deaths in city	4	7	11	6.9
Cases probably contracted in city	1*	4	5	3.1
Cases contracted outside	3	3	6	3.8

* Case brought over from 1916—Died January 8, 1917.

Excluding those cases undoubtedly contracted outside of the city, a total of six (three white and three colored), the death rate per 100,000 for the five remaining cases will be 3.1—an almost unbelievably low rate; and when it is realized that the sole white Richmond death was a case brought over from 1916, the authentic record is still further reduced to 2.5 in the 100,000.

The graphic chart of cases appended throws interesting sidelights upon the typhoid morbidity rate. It is seen that many of the cases credited to Richmond did not use city water but, living in the suburbs, were forced to depend upon wells. Where there are no water mains, there are usually no sewers, and the privy is therefore the only method of disposing of body wastes; and so the combination of the bad water supply and the bad sewage disposal brings forth its legitimate effect in typhoid.

JAN.	
FEB	
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JULY	
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NOV	
DEC	

A new regulation, passed by the Administrative Board at the sugestion of this Department, requires that all wells be properly protected against surface contamination and that pumps be installed. This law is being enforced as the Inspectors of the sanitary force discover violations, and it is expected that before the advent of summer these very fruitful sources of intestinal disease will be rendered safe.

During the past year, after investigation by the Chief Sanitary Officer and on the recommendation of the Chief Health Officer, the Administrative Board has ordered the extension of water mains to many streets in which sewers but no water pipes were laid. This has resulted in the installation of sanitary plumbing and the abolition of dry closets at many homes, greatly to the benefit of the neighborhoods concerned.

MALARIA.

the benefit of the neighborhoods concerned.

and raising the rate for this disease 1.9 in the 100,000 over that of 1916. Three of these cases were of the comatose type, occurring in one family. All were adults, dying within twenty-four hours of each other. The aestivo-autumnal parasite was found in the blood of one of the patients before death. Some features in connection with this group of cases, however, leave the Department somewhat in doubt as to whether malaria was the sole cause of these fatalities.

YEAR	DEATHS FROM MALARIAL FEVER	
	Number of Deaths	Death Rate Per 100,000
1904	17	18.8
1905	28	30.4
1906	14	15.0
1907	32	28.2
1908	7	6.1
1909	9	7.7
1910	6	4.7
1911	1	0.8
1912	3	2.3
1913	0	0.0
1914	1	0.7
1915	1	0.6
1916	1	0.6
1917	3	2.5
Annual average 1904–1907	22.8	23.1
Annual average 1908–1910	7.3	6.2
Annual average 1911–1917	1.4	1.1

MEASLES.

There were six deaths from measles during the year, out of a total of 1,520 cases, giving a case fatality rate of .4 and a mortality per 100,000 of 3.8. The disease not assuming epidemic proportions, the Medical Inspector was able, with the help of the Chief Sanitary Officer, to attend to the epidemiological work and the placarding of houses without the necessity for employing additional physicians.

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1906	14	15.0
1907	32	28.2
1908	7	6.1
1909	9	7.7
1910	6	4.7
1911	1	0.8
1912	3	2.3
1913	0	0.0
1914	1	0.7
1915	1	0.6
1916	1	0.6
1917	3	2.5
Annual average 1904–1907	22.8	23.1
Annual average 1908–1910	7.3	6.2
Annual average 1911–1917	1.4	1.1

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Table Showing the Annual Number of Deaths and the Annual Death Rate from Measles, Richmond Va., 1880–1917

YEAR	Number of Deaths	Annual Death Rate Per 100,000	YEAR	Number of Deaths	Annual Death Rate Per 100,000
1880	3	4.7	1900	3	3.5
1881	14	21.4	1901	0	0.0
1882	1	1.5	1902	3	3.4
1883	10	14.5	1903	13	14.6
1884	12	17.0	1904	0	0.0
1885	1	1.4	1905	1	1.1
1886	0	0.0	1906	1	1.1
1887	24	31.6	1907	35	30.9
1888	5	6.4	1908	6	5.2
1889	0	0.0	1909	1	.9
1890	27	33.2	1910	29	22.7
1891	5	6.1	1911	12	9.3
1892	0	0.0	1912	1	.8
1893	10	12.1	1913	25	18.8
1894	1	1.2	1914	1	.7
1895	0	0.0	1915	0	.0
1896	11	13.2	1916	40	25.5
1897	0	0.0	1917	6	3.8
1898	8	9.5			
1899	0	0.0			

The following table gives the annual average number of deaths and the annual average death rate from measles by periods of five years:

PERIOD	MORTALITY FROM MEASLES	
	Number of Deaths	Rate Per 100,000
1880–1884 (5 years)	8.0	11.8
1885–1889 (5 years)	6.0	7.7
1890–1894 (5 years)	8.6	10.7
1895–1899 (5 years)	3.8	4.5
1900–1904 (5 years)	3.8	4.3
1905–1909 (5 years)	8.8	7.8
1910–1914 (5 years)	13.6	10.5
1913–1917 (last 5 years)	14.4	9.8
1917	6.0	3.8

SCARLET FEVER.

Scarlet fever was responsible for but one death this year, out of a total of 139 cases. This gives a death rate in the 100,000 of .6, thus equalling the lowest previous record—that of 1915.

Table Showing the Annual Number of Deaths from Scarlet Fever and the Annual Death Rate per 100,000 in the City of Richmond, Va , from 1872 to 1917.

YEAR	DEATHS FROM SCARLET FEVER		YEAR	DEATHS FROM SCARLET FEVER	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1872	2	3.7	1895	3	3.6
1873	4	7.3	1896	3	3.6
1874	3	5.3	1897	1	1.2
			1898	2	2.4
1875	1	1.7	1899	2	2.4
1876	6	10.2			
1877	27	45.1	1900	3	3.5
1878	105	171.9	1901	0	0.0
1879	98	157.2	1902	2	2.3
			1903	3	3.4
1880	4	6.3	1904	2	2.2
1881	0	0.0			
1882	8	11.9	1905	1	1.1
1883	2	2.9	1906	3	3.2
1884	6	8.5	1907	0	0.0
			1908	1	.9
1885	8	11.0	1909	1	.9
1886	6	8.1			
1887	1	1.3	1910	0	0.0
1888	1	1.3	1911	3	2.3
1889	1	1.3	1912	1	.8
			1913	5	3.8
1890	1	1.2	1914	2	1.5
1891	3	3.7			
1892	1	1.2	1915	1	.6
1893	1	1.2	1916	2	1.3
1894	1	1.2	1917	1	.6

Combining the figures in the above table, we get the following average annual number of deaths and average annual death rate from scarlet fever in Richmond for five-year-periods.

PERIOD	AVERAGE ANNUAL MORTALITY FROM SCARLET FEVER	
	Number of Deaths	Rate Per 100,000
1872–1874 (3 years)	3.0	5.4
1875–1879 (5 years)	47.4	77.2
1880–1884 (5 years)	4.0	5.9
1885–1889 (5 years)	3.4	4.6
1890–1894 (5 years)	1.4	1.7
1895–1899 (5 years)	2.2	2.6
1900–1904 (5 years)	2.0	2.3
1905–1909 (5 years)	1.2	1.2
1910–1914 (5 years)	2.2	1.7
1913–1917 (last 5 years)	2.2	1.6
1917	1.0	.6

WHOOPING COUGH.

Whooping cough continues to leave its deadly trail, somewhat less deadly, it is true, in 1917; than in 1916 (27.7 of mortality in 1917, as against 29.4 the previous year), but still maintaining its high place as a destroyer of babyhood. It is the purpose of the department in the coming year to put into force greater restrictive measures against this disease than have been used in Richmond hitherto.

Table Showing the Annual Number of Deaths and the Annual Death Rate from Whooping Cough, in Richmond, Va., 1871–1917.

YEAR	DEATHS FROM WHOOPING COUGH		YEAR	DEATHS FROM WHOOPING COUGH	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1871	115	219.9	1895	4	4.8
1872	4	7.5	1896	24	28.7
1873	17	31.0	1897	31	36.9
1874	37	66.0	1898	3	3.6
			1899	0	0.0
1875	3	5.2			
1876	72	122.7	1900	27	31.7
1877	15	25.1	1901	35	40.4
1878	10	16.4	1902	19	21.6
1879	1	1.6	1903	56	62.7
			1904	2	2.2
1880	42	66.0			
1881	35	53.5	1905	1	1.1
1882	12	17.9	1906	52	55.7
1883	54	78.4	1907	3	2.6
1884	19	26.9	1908	33	28.8
			1909	13	11.2
1885	7	9.7			
1886	42	56.5	1910	47	36.8
1887	26	34.2	1911	51	39.4
1888	3	3.9	1912	5	3.8
1889	17	21.4	1913	17	12.9
			1914	61	45.2
1890	45	55.3			
1891	6	7.3	1915	10	6.5
1892	38	46.3	1916	46	29.4
1893	16	19.4	1917	44	27.7
1894	21	25.4			

The following grouping of the figures in the above table shows the average annual number of deaths and the average annual death rate from whooping cough in five-year periods since 1871:

PERIOD	AVERAGE ANNUAL MORTALITY FROM WHOOPING COUGH	
	Number of Deaths	Rate Per 100,000
1871–1874 (4 years)	43.3	81.1
1875–1879 (5 years)	20.2	34.2
1880–1884 (5 years)	32.4	48.5
1885–1889 (5 years)	19.0	25.1
1890–1894 (5 years)	25.2	30.7
1895–1899 (5 years)	12.4	14.8
1900–1904 (5 years)	27.8	31.7
1905–1909 (5 years)	20.4	20.0
1910–1914 (5 years)	36.2	27.6
1913–1917 (last 5 years)	35.6	24.3
1917	44.0	27.7

DIPHTHERIA.

There were 398 cases of diphtheria in Richmond in 1917, with nine deaths, as against 244 cases, with five deaths, in the previous year—an increase in mortality for this disease for the year of 2.5 in the 100,000 of population. The average mortality from diphtheria in the last five-year period, as compared with that of the previous five years, however, shows a decrease of nearly 100 per cent. (4.4 from 1908 to 1912, as against 8.5 from 1913 to 1917).

The case incidence for diphtheria, which usually begins to rise just after the schools open in the fall, anticipated itself somewhat in 1917 and got a fairly running start in August. Shortly after the session opened, in September, a speaking campaign was inaugurated in the schools, the Health Department working in co-operation with the State Board of Health and the inspecting physicians of the School Board. Every public school and many private schools in the city were visited. Among other things, the children were told to cover their coughs and sneezes and to keep their fingers and pencils out of their mouths.

Whenever diphtheria appeared in a classroom, the throats of the children and teacher in that room were inspected, and suspicious throats were swabbed and the cultures examined at the city laboratory. In this way many cases and carriers were found and excluded.

Supplementary to this work, the Richmond Anti-Tuberculosis Association distributed through the schools an artistically illustrated bulletin, in colors, emphasizing the same facts.

We are warranted, therefore, in believing that but for this intensive campaign the proportion of diphtheria, as well as other contagious troubles, would have been much heavier.

For years it has been the rule of this department to release diphtheria cases from quarantine on the second negative culture (our own officer taking the second culture), permitting the case and contacts to return to school after a minimum time of eight days. The minimum time recommended by the State Board of Health, even though negative culture be taken, being two weeks, we have modified our rule to conform therewith. Coincidentally with this change, the cases of diphtheria declined rapidly. It remains to be seen whether this reduction is simply a coincidence or not.

Table Showing the Annual Number of Deaths from Diphtheria (Including Croup), and the Annual Death Rate per 100,000 in the City of Richmond, Va., from 1875 to 1917.

YEAR	DEATHS FROM DIPHTHERIA		YEAR	DEATHS FROM DIPHTHERIA	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1875	31	54.1	1895	20	24.0
1876	45	76.8	1896	19	22.7
1877	21	35.1	1897	17	20.2
1878	36	58.9	1898	13	15.4
1879	27	43.3	1899	5	5.9
1880	16	25.2	1900	6	7.0
1881	28	42.8	1901	10	11.6
1882	29	43.2	1902	38	43.2
1883	37	53.7	1903	44	49.3
1884	15	21.2	1904	10	11.0
1885	25	34.5	1905	12	13.0
1886	59	79.4	1906	10	10.7
1887	74	97.3	1907	16	14.1
1888	26	33.4	1908	4	3.5
1889	35	44.0	1909	9	7.7
1890	79	97.0	1910	13	10.2
1891	145	177.4	1911	13	10.1
1892	10	12.2	1912	8	6.1
1893	10	12.1	1913	8	6.0
1894	8	9.7	1914	4	3.0
			1915	6	3.9
			1916	5	3.2
			1917	9	5.7

In the following table the number of deaths from diphtheria and the death rate per 100,000 inhabitants are given by five-year periods.

PERIOD	AVERAGE MORTALITY FROM DIPHTHERIA	
	Number of Deaths	Death Rate Per 100,000
1875–1879 (5 years)	32.0	53.6
1880–1884 (5 years)	25.0	37.2
1885–1889 (5 years)	43.8	57.7
1890–1894 (5 years)	50.4	61.7
1895–1899 (5 years)	14.8	17.6
1900–1904 (5 years)	21.6	24.4
1905–1909 (5 years)	10.2	9.8
1910–1914 (5 years)	9.2	7.1
1913–1917 (last 5 years)	6.4	4.4
1917	9.0	5.7

LOBAR PNEUMONIA.

One hundred and eighty Richmond people were carried off by this disease in 1917. This was an increase of five deaths over the previous year, though the average annual death rate for the past five years was a decided reduction over the previous five-year period. One hundred and eight of the 1917 cases died between the ages of twenty and sixty years—the most productive period of life.

By common consent of health authorities, lobar pneumonia is now classed as an infectious disease. The Health Department has, therefore, made it reportable by physicians, and during the coming year an effort will be made to see that all cases are properly isolated.

BRONCHO-PNEUMONIA.

This disease takes its toll of infancy and childhood, ninety-seven of the 123 deaths reported during 1917 from this cause occurring before the sixth year of life. Public education as to the contagiousness of bad colds, the dangers of poor ventilation and of kissing babies on the mouths must be looked to for the reduction of this most fatal disease.

The accompanying table gives the deaths, by age periods, for broncho and lobar pneumonia for the past year.

Number of Deaths from Broncho-Pneumonia and Lobar Pneumonia, and Ages at Time of Death.

CAUSE	AGE PERIODS. 1917. Under 1 Yr.	Yrs. 1–2	Yrs. 2–5	Yrs. 5–10	Yrs. 10–15	Yrs. 15–20	Yrs. 20–25	Yrs. 25–30	Yrs. 30–35	Yrs. 35–40	Yrs. 40–50	Yrs. 50–60	Yrs. 60–70	Yrs. 70–80	Yrs. 80–90	Yrs. 90–100	Yrs. Over 100
Broncho-Pneumonia	59	27	11	2	1	1	......	......	1	1	6	2	5	3	4	......	......
Lobar Pneumonia	13	7	7	4	4	5	12	15	12	19	21	29	15	14	3	......	......
Total	72	34	18	6	5	6	12	15	13	20	27	31	20	17	7	......	......

TUBERCULOSIS.

A total of 248 deaths fro mtuberculosis of the lungs occurred in Richmond during 1917, 29 cases less than the 1916 record, giving a death rate per 100,000 of 156.3, as against 176.8 for 1916. The average annual death rate for the past five years shows, also, a material reduction over that of the previous five years, the rate from 1913 to 1917 being 169.4, while from 1908 to 1912 the figures were 211.0, a difference of 41.6 on the bright side of the ledger.

It is planned to extend the clinical facilities of the department with reference to this disease and it is hoped that during the coming year a larger percentage of incipient cases will be located and instructed than has hitherto been possible.

A closer affiliation with the Richmond Anti-Tuberculosis Association is also desirable. A considerable amount of money has been raised by this association from Richmond citizens for tuberculosis work in the city. That the plans of this splendid agency should be co-ordinated with those of the Health Department in a concerted attack upon consumption would seem to admit of no argument. The Chief Health Officer is on the Board of Directors.

INFANTILE DIARRHEA.

It is regretable that the low record in infant mortality from infantile diarrhea set by the Richmond Health Department during the years 1915 and 1916 was not maintained during 1917. There was an increase in the death rate for infants under two years in 1917 to the amount of 6.1 in the 100,000 over the previous year, and this in spite of the fact that there was no relaxation of our efforts.

The campaign against infant mortality was begun early in the summer, an extra nurse being granted by the Administrative Board to aid in the fight.

The Federation of Mothers' Clubs and the Zionist Institute each supplied the funds for additional nurses at the milk stations, as well as other funds for free milk for all that could not pay.

The Salvation Army equipped a nursery for colored babies on Brook Avenue, and, through the efforts of the Juvenile Protective Association, which enlisted the aid of the Evening Journal, and appeals by the secretary of the State Board of Charities and Corrections and by the Chief Health Officer to private individuals, a fund was raised to employ a colored nurse to take charge of it. Twenty colored babies were looked after continuously during the summer at the nursery while their mothers were out at service, and there is no question but that infants were saved there that otherwise must have inevitably died.

The intense heat and humidity of the summer, however, more than counterbalanced our increased efforts, and 113 babies under two years of age died, as against 102 the year before, causing Richmond's death rate to rise to 71.2 in the 100,000, as compared with 65.3 and 65.1 in 1915 and 1916, respectively. This retrograde movement did not extend itself to the children over two years of age, only twenty-eight of whom died in 1917, as against thirty-five the year before, making 17.6 the death rate, the rate in 1916 being 22.4.

The following tables show in a very striking way the result of the Health Department effort in the control of infant mortality from diarrheal diseases.

YEAR	DEATHS FROM INFANTILE DIARRHEA (Under Two Years)	
	Number of Deaths	Death Rate Per 100,000 Inhabitants
1907	161	142
1908	140	122
1909	147	126
1910	169	132
1911	196	151
Annual average	163	135
1912	132	100
1913	112	84
1914	97	72
1915	101	65
1916	102	65
Annual average	109	77
1917	113	71
Annual average 1913–1917 (last 5 years)	105	72

Comparison of the Annual Death Rate from Infantile Diarrhea in Richmond During the Five-Year Period, 1908–1912, and the Five-Year Period, 1913–1917.

	FIVE-YEAR PERIOD 1908–1912, Inclusive	FIVE-YEAR PERIOD 1913–1917, Inclusive
Annual aveage	126	72
Highest year	151	84
Lowest year	100	65

INFANT MORTALITY—ALL CAUSES.

In 1915 the death rate for infants under one year from all causes struck the lowest level in Richmond's history, the number of deaths being 442, giving a death rate per 1,000 births of 127 and a rate per 1,000 population of 2.85. In 1916 this record was not maintained, and, although there was no relaxation in the measures of control, 533 infants under one year died in the city, the rate being 137 per 1,000 births and 3.40 per 1,000 of population. The record of the year 1917 gives a somewhat better showing than in 1916, there being 516 deaths among these babies, with rates of 134 and 3.25 per 1,000 of births and population, respectively.

It becomes increasingly apparent that bad living conditions in the poorer quarters of the city are to be charged with our failure to keep down the baby death rate, for when a prolonged hot, humid spell visits this latitude, it is not the babies of the West End or of the suburbs that suffer and die, but those whose parents are forced, by the neglect of adequate housing legislation, to live in kennels unfit for dogs.

Trained nurses keep down the death rate wonderfully; nature, when she smiles, helps even more; but in Richmond, until thousands of habitations (miscalled dwellings) are abolished by law, and other structures into which sunlight and fresh air may penetrate take their places, the children of the poor will continue to die like flies when the heat of July and August comes.

The following table gives, in detail, the causes that operate to cut off the lives of Richmond's youngest citizens. It will be noticed that broncho-pneumonia and pneumonia (diseases of poor ventilation), diarrhea and enteritis (diseases of overcrowding and insanitation), and congenital debility (a condition caused by weakened stamina in the mothers) furnish the main doorways of death. Their relation to bad living conditions is too plain for further elucidation. I repeat that an adequate housing law, properly enforced, is the greatest public health need in Richmond.

Deaths of Infants Under One Year Occurring in Richmond Va. Dur ng the Year 1917, Classified by Age at Death, Month, Color, Sex, and Cause of Death.

1917	Und r 1 Day	2d Day	3d Day	4th Day	5th Day	6th Day	7th Day	8th Day	9th Day	10th Day	11th Day	12th Day	13th Day	14th Day	3–4 Wks.	1–3 Mos.	3–6 Mos.	6–12 Mos.	Total
January	10	1	1	3				1	1			1	2		5	6	10	15	56
February	8			2			1			1					5	9	5	9	40
March	9	2						1							1	15	5	10	43
April	9		1	1	2	1			2		2				1	4	11	10	44
May	5			1	1		1								3	5	6	5	27
June	3	2	2		2	1		1		1		1			1	5	10	11	40
July	8	1	1			2		2	1		2				4	10	16	20	67
August	7	3	2				1	1							1	8	15	13	51
September	9	2	2	1				1				1	1		3	6	7	19	52
October	6	3	2		1	2									2	7	3	17	43
November	3	2	2			1									2	5	8	2	25
December	4	1	6	2	2										1	7	4	1	28
White	42	12	13	8	6	2	2	6	3	0	2	0	1	0	12	37	38	50	234
Colored	39	5	6	2	2	5	1	1	1	2	2	3	2	0	17	50	62	82	282
Male	44	12	12	7	5	5	3	3	2	2	4	0	0	0	16	54	59	77	305
Female	37	5	7	3	3	2	0	4	2	0	0	3	3	0	13	33	41	55	211
6. Measles																	1	1	2
8. Whooping cough																5	4	12	21
24. Tetanus												1							1
30. Tuberculous meningitis																1		3	4
18. Erysipelas																1			1
31. Abdominal tuberculosis																	1		1
36. Rickets																1	1		2
37. Syphilis	3					1			1						1	8	4	6	24
54. Anaemia, chlorosis																1			1
55. Other general diseases									1										1
61. Simple meningitis								1										1	2
71. Convulsions of infants						1		2								2	4	3	12
76. Diseases of the ears																1		1	2
79. Organic heart disease																2			2
84. Diseases of the lymphatic system	1	1		1							1					1			5
89. Acute bronchitis																2	3	1	6
91. Broncho pneumonia													1		5	16	12	25	59
92. Lobar pneumonia																5	3	5	13

1917	Under 1 Day	2d Day	3d Day	4th Day	5th Day	6th Day	7th Day	8th Day	9th Day	10th Day	11th Day	12th Day	13th Day	14th Day	3–4 Wks.	1–3 Mos.	3–6 Mos.	6–12 Mos.	Total
94. Pulmonary congestion, pulmonary apoplexy			1													1			2
99. Diseases of the mouth and annexa																	1	2	3
103. Other diseases of the stomach (cancer excepted)															1	1	4	1	7
104. Diarrhea and enteritis									1						3	8	35	50	97
109. Hernia, intestinal obstruction															1	1	2	1	5
119. Acute nephritis															1				1
142. Gangrene																		1	1
144. Acute abscess															1				1
150. Congenital malformation	2	2	1	1				1	1		1				1	1	2	2	15
151. Congenital debility, icterus and sclerema	66	12	14	6	8	4	3	2		2	2	2	2		14	19	16	12	184
152. Other causes peculiar to early infancy	4	2	2	2															10
153. Lack of care	1															1			2
168. Absorption of deleterious gases						1		1								2	3	1	8
177. Starvation																1			1
179. Effects of heat																2	1		3
184. Homicide by other means	4																		4
185. Fractures																		1	1
189. Cause of death not specified or ill-defined			1												1	4	2	3	11
186 Other external violence																	1		1
Total	81	17	19	10	8	7	3	7	4	2	4	3	3	0	29	87	100	132	516

Deaths of Infants Under One Year of Age.

YEAR	Number of Deaths	DEATH RATE		Percentage of Deaths at all Ages
		Per 1,000 Births	Per 1,000 Population	
1908	530	189	4.62	21.3
1909	525	185	4.52	21.8
1910	623	228	4.87	21.6
1911	534	181	4.12	19.7
1912	528	172	4.02	19.5
1913	508	162	3.81	18.7
1914	509	161	3.78	19.1
1915	442	127	2.85	15.1
1916	533	137	3.40	17.2
1917	516	134	3.25	17.5

SMALLPOX.

Only four cases of smallpox were reported in Richmond during 1917. All of these were in negroes. By prompt and vigorous vaccination of the neighborhood affected and by transferring the cases to the Smallpox Hospital, no secondary cases resulted.

The policy of the department has always been to honor the certificates of physicians for one school term when they have asked exemption from vaccination for certain school children, it being assumed that no physician would ask exemption except for the best of reasons. Some apparent abuse of this certification was observed in certain cases, so it has been decided to require that the specific reason for asking exemption be stated in the certificate. This rule has resulted in the vaccination of a number of children that otherwise would have been exempted for insufficient reasons. The regulation for compulsory vaccination of all school children has for years met with the approval and hearty co-operation of the school authorities, and so there is little danger of the disease ever becoming a serious menace to the city.

SMALLPOX HOSPITAL.

Considering the few cases of smallpox that occur and the complete knowledge that we possess as to measures of control, the maintenance of a special isolation hospital for smallpox is, in my judgment, an unnecessary expense. The few cases that have occurred in the last two or three years could have been handled cheaply and easily at the City Home isolation wards. An extension of these wards could be made quickly, if necessary, and I would advise that, as soon as practicable, the smallpox and leper aspects of the City Farm be done away with.

LEPROSY.

The leper, George Hodges, now isolated on the City Farm, is apparently failing in health. He has hitherto kept his strength remarkably well, but now his disease is beginning to attack his throat. A severe cold, caught this winter, has further debilitated him. Every comfort is provided for him except human companionship, and it is hoped that the leprosarium which has been authorized by Congress will soon be opened and prepared to give him the benefit of such care as the National Government can provide.

INFANTILE PARALYSIS.

Infantile paralysis presented no serious problem to the Health Department this year, seven cases only occurring in the city (five white and two colored), four in July, one in September and two in October. None was reported until after symptoms of paralysis appeared. There were no fatalities or secondary cases. The average age was five years, the youngest being two years, the oldest eight.

COMPARATIVE MORTALITY OF THE WHITE AND COLORED RACES.

The ratio of white to colored deaths presents the usual startling picture. A little over half again as many colored people die yearly in the city, from all causes, as white. The ratio was a little better in 1917 than in 1916, the figures being 1.51 for this year as against 1.56 last year. The ratio in tuberculosis, pneumonia and other diseases of the respiratory organs is two and three times as great among negroes as among whites. In infantile diarrhea, also, the proportion of deaths is three times larger. In part explanation of this high mortality, it must be noted that the negro sections of the city are abnormally crowded, and the housing conditions there are often unspeakably vile; so, with the colored man's aversion to fresh air and the external application of water, aided and abetted by his landlord, through the character of dwellings furnished (in which the negro must live or be roofless), disease and death ride rampant over him. Syphilis, too, is 400 per cent. greater among the negroes this year than among whites. When it is realized that the serving class of the city, the nursemaids, cooks, butlers, washerwomen, and their children, brothers, sisters, cousins, aunts and affinities, are supplying the dead material for these statistics, and that for every death there are from five to ten unrecognized but actively contagious cases of lung disease, or worse, moving about the community, the need for action thrusts itself upon us. A knowledge of what to do to prevent disease will be worthless to these poor people unless decent living quarters, at moderate rentals, be provided them, so that they may keep well.

The Health Department laboratory will test, without charge, the blood or the sputum of any cook or nursemaid that is sent to it.

The accompanying table makes comparison, in detail, between white and colored deaths.

Table Showing Comparative Mortality of the White and Colored Races from Certain Causes in Richmond, Va., During 1917.

CAUSES OF DEATH	NUMBER OF DEATHS		DEATH RATE PER 100,000*		Ratio of Colored Death Rate to White
	White	Colored	White	Colored	
Typhoid fever—					
Including non-residents	4	7	4.0	12.0	3.03
Residents only	4	6	4.0	10.3	2.60
Mplarial fever	3	1	3.0	1.7	.58
Measles	1	5	1.0	8.6	8.65
Scarlet fever	1	0	1.0	....	....
Whooping cough	14	30	13.9	51.6	3.71
Diphtheria (including croup)	8	1	8.0	1.7	.22
Influenza	12	16	11.9	27.5	2.31
Dysentery	11	7	10.9	12.0	1.10
Tetanus	2	1	2.0	1.7	.86
Pellegra	11	9	10.9	15.5	1.42
Consumption	105	143	104.4	246.0	2.36
Other forms of tuberculosis	30	28	29.8	48.2	1.61
Syphilis	19	46	18.9	79.1	4.19
Cancer (of all organs)—					
Non-residents included	82	31	81.6	53.3	.65
Residents only	69	29	68.6	49.9	.73
Diabetes	28	1	27.8	1.7	.06
Apoplexy	119	94	118.3	161.7	1.37
Other diseases of the nervous system	51	41	50.7	70.5	1.39
Organic heart disease	219	143	217.8	246.0	1.13
Bright's disease	164	71	163.1	122.2	.75
Heart and Bright's disease combined	383	214	380.9	368.1	.97
Pneumonia (lobar or unqualified)	65	115	64.6	197.8	3.06
Broncho pneumonia	42	81	41.8	139.3	3.34
Lobar and broncho pneumonia combined	107	196	106.4	337.2	3.17
All diseases of the respiratory system (consumption not included); that is, Group IV of the Internatonal Cassification	135	248	134.3	426.7	3.18
Diarrhea (under 2 years)	45	68	44.8	116.9	2.61
Diarrhea (over 2 years)	15	13	14.9	22.4	1.50
Appendicitis—					
Including non-residents	24	10	23.9	17.2	.72
Residents only	10	8	9.9	13.8	1.38
Diseases of the puerperal state	19	19	18.9	32.7	1.73
Congenital debility	99	85	98.4	146.2	1.49
Senile debility	21	9	20.9	15.5	.74
Legal electrocution	0	5	....	8.6	....
Suicide	14	2	13.9	3.4	.25
All other violent deaths	74	56	73.6	96.3	1.31
Ill-defined or unknown	6	32	6.0	55.0	9.22
Total deaths, all causes—					
Including non-residents	1,568	1,368	1,559	2,353	1.51
Residents only	1,368	1,317	1,360	2,266	1,66

* All rates in this table are calculated from the official figures of the U. S. Bureau of the Census for the 1917 mid-year population. These figures are: White, 100,570; colored, 58,130.

BIRTHS.

Of the 3,837 births reported to the Health Department during 1917, 2,536 were white and 1,301 colored; 1,978 were male and 1,859 female. The birth rate for whites was 25.22, for colored 22.38, giving a general birth rate of 24.18 per 1,000 of population.

There was a falling off of sixty-five births from the last year total, though we have reason to believe that a more complete birth return is now made than ever before. A campaign has been launched in which the Sanitary Inspectors of the department, in their rounds, make inquiry at every house as to whether any babies have been born during the past two years, and, if so, the name is taken and looked up in our files. If it does not appear there, the doctor or midwife is brought to book. The proportion of unrecorded births found, however, is small,

The birth rate of the white population is well in advance of the death rate. Excluding non-residents, the white total of deaths is 1,368, while the number of white births is 2,536, a favorable balance of 1,168 lives.

The colored ratio of births to deaths shows a loss of sixteen, there being 1,301 born, while 1,317 died.

In summing up the whole matter of births and deaths for Richmond residents in 1917, we may still congratulate ourselves that the lessened death roll leaves a life balance in our favor of 1,152 people, though there was a slight reduction in the birth rate.

Year.	Number of Births Reported.	Reported Birth Rate Per 1,000.
1900	818	9.61
1901	729	8.42
1902	752	8.55
1903	666	7.46
1904	636	7.02
1905	608	6.61
1906*	1,133	12.13
1907†	2,311	20.37
1908	2,806	24.44
1909	2,839	24.44
1910†	2,734	21.37
1911	2,940	22.74
1912	3,069	23.49
1913	3,135	23.74
1914	3,155	23.38
1915	3,473	22.45
1916	3,902	24.90
1917	3,837	24.18

MILK SUPPLY.

Notwithstanding many difficulties incident to the high cost of cattle feed and of labor, the milk supply of Richmond has been kept to the high standard previously established by the department.

It will be noticed that the dairies scoring between 60 and 70 have been reduced to a negligible number, 1.2 per cent., while those in the 70 to 80 class have increased 12.5 per cent., and those from 80 to 100 have kept at about the same point as last year. In the face of war conditions, however, we anticipate that it will become increasingly difficult to maintain all of our standards. Up to now we have held rigidly to them, and nothing but dire necessity would induce us to relax them in any particular.

Though there is in 1917 a loss of 1.5 per cent. in the average score of all dairies, to the discriminating observer a decided improvement over last year in the general milk supply is indicated by the following tables:

Table Showing the Percentage of Dairy Farms in the Various Classes from May, 1907, Through December, 1917—Summary by Years.

CLASS	PERCENTAGE OF ALL DAIRY FARMS INSPECTED DURING THE YEAR WHICH FELL IN EACH CLASS										
	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917
Scoring below 30..............	6.0	......	......	......	......	......	......	......	......	......	......
Scoring between 30 and 40.....	13.2	......	......	......	......	......	......	......	......	......	......
Scoring between 40 and 50.....	26.3	0.2	......	......	......	......	......	......	......	......	......
Scoing between 50 and 60.....	30.1	3.2	0.3	......	......	......	......	......	1.9	.2	......
Scoring between 60 and 70.....	18.3	27.6	20.8	2.5	......	......	......	......	33.8	13.9	1.2
Scoring between 70 and 80.....	5.2	43.1	51.7	47.4	40.4	23.8	17.0	16.9	52.3	65.8	78.3
Scoring between 80 and 90.....	0.9	23.1	23.1	42.4	55.2	72.9	79.2	80.2	9.8	17.6	17.5
Scoring between 90and 100....	......	2.8	4.1	7.7	4.4	3.3	3.8	2.9	2.2	2.5	3.0
Average of all scores for the year..............	50.4	74.1	75.8	80.5	81.3	82.5	82.8	82.8	72.2	75.4	76.9

The scores for 1915, 1916, and 1917 were not as high as scores for some of the previous years, for the reason that we adopted a new score card in the year 1915.

Table Showing the Percentage of Dairy Farms in the Various Classes for Each Month During 1917.

CLASS	PERCENTAGE OF ALL DAIRY FARMS INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS DURING 1917											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 60 to 70.........	1.6	1.7	......	1.7	......	......	......	.8	......	.9	.8	......
Scoring 70 to 80.........	79.5	80.4	83.2	72.7	80.5	67.6	80.0	75.2	81.7	81.9	78.5	80.4
Scoring 80 to 90.........	17.2	13.4	13.5	21.4	15.6	28.4	15.8	20.9	17.4	13.6	18.2	17.7
Scoring 90 to 100........	1.7	4.5	3.3	4.2	3.9	.4	4.2	3.1	.9	3.6	2.5	1.9
Average of all scores for the month.....	76.9	76.7	76.6	77.4	77.0	78.4	77.1	77.5	76.9	76.2	76.7	76.4

At the request of the former Chief Health Officer, the Dairy Division of the United States Bureau of Animal Industry last year detailed several of their experts to this department to study the milk situation of Richmond from all angles. Mr. Ernest Kelly, director of Market Milk Investigations, was in charge. This investigation, which lasted about a month, took place in July, the most unfavorable season of the year for milk from a bacteriological standpoint. The report of the experts has not as yet been published. The verbal expressions of the investigators, however, indicate that they were exceedingly pleased with all phases of our dairy work.

The report of Mr. T. J. Strauch, Dairy Inspector, found elsewhere in this report, is worth a careful study by all who are interested in the production of a pure and adequate milk supply on a paying basis.

LABORATORY AT THE WATER WORKS.

Attached to this report is the report of the Bacteriologist of the Water Department, Mr. Frank O. Baldwin, stationed at the settling basins of the city's water supply. This report, and certain tabular information in connection therewith, should be of special interest to all who realize the part played by pure water in the preservation of health.

MUNICIPAL SURVEY.

In 1917 the Health Department, together with other departments of the city government, came in for an exhaustive investigation by the New York Bureau of Municipal Research, Dr. C. E. McCombs being detailed for that purpose. The report, which has been published, in the main conforms to the ideas of health department development expressed in the foregoing pages. Less than justice, however, would be done were attention not called to the fact that practically every recommendation with reference to the department, of a constructive character, occurring in that report had been made a part of the program of progress for the Health Department prior to the visit of the investigators.

CONCLUSION.

The war has laid a heavy hand upon the Health Department, the Medical Inspector, Dr. Henry S. Stern, and the Bacteriologist, Dr. Kenneth D. Graves, having enlisted in the army. The Administrative Board has granted them leaves of absence for the period of the war. Both of these officials were in office under the administration of the present Chief Health Officer too short a time for him to adequately estimate their value, but during the period that he was privileged to observe their work he learned to appreciate their sterling quality, their industry and their devotion to the public welfare; also their high ability as students of the science of public health. Dr. Stern (now First Lieutenant Stern) has been attached to the Department of Roentgenology (X Ray) in the Medical Reserve Corps of the army, and is splendidly demonstrating his capacity in a new field of medical science. Dr. Graves (now Captain Graves) is the head of the laboratory at the base hospital at Camp Wadsworth, near Spartanburg, S. C. His rapid promotion evidences very clearly the high estimation in which he is held by officials who ruthlessly apply the efficiency test to every man. Before leaving the Richmond Health Department, Dr. Graves made a very important contribution to laboratory technique by suggesting a simple device for more easily determining the fermentation of gas-forming bacteria in lactose media. This simple device, which competent men claim to be a distinct improvement over other methods in the delicacy of its results, is fully described in an article in the Journal of the American Medical Association, December 22, 1917.

Two nurses of the department have also severed their connection with the department. Mrs. F. B. Croxton, who was placed on the staff of nurses by the Administrative Board as Special Tuberculosis Nurse, and who had completely demonstrated her fitness for the position, has been forced to sever her connection with the department, temporarily, on account of the illness of her husband. Miss Marie C. Daly was appointed to fill the vacancy, and she has abundantly made good.

Miss S. R. Talcott, another competent nurse, has also left the city's service, on account of her marriage to Lieutenant Fisher, of the Coast Artillery. Miss Celeste Barrow has been appointed in her stead, and is proving an industrious and efficient worker.

In closing, permit me to emphasize the supreme importance of health conservation as a policy of our people. With the best of American manhood by the million pouring into the war, the duty of those who remain behind to keep down unnecessary sickness and death at home is too plain to be neglected. No stone must be left unturned, and well-considered plans for the enlistment of the whole people in public health work should receive the sanction and support of all.

Respectfully submitted,

ROY K. FLANNAGAN.
Chief Health Officer.

FINANCIAL STATEMENT—SUMMARY.

Account.	Appropriation.	Expended.	Balance.
Pay roll	$40,029 37	$39,384 49	$ 644 88
Expense	14,860 00	11,942 23	2,917 77
Special vaccination	2,000 00	1,788 52	211 48
	$56,889 37	$53,115 24	$3,774 13

Total appropriations as above		$56,889 37
Reimbursements:		
Unexpended balance as above	$3,774 13	
Food permits	706 00	
Total reimbursements		$ 4,480 13
Net cost of maintenance of the Health Department for the year 1917		$52,409 24

PAY ROLL AND EXPENSE.

Administration.

Salaries	$5,440 33	
Stationery and printing	635 95	
Supplies	18 66	
Postage	242 24	
Furniture and fixtures	1,022 96	
Telephones	277 97	
Total disbursement for administration		$7,638 11

PREVENTION OF COMMUNICABLE DISEASES.

Salaries	$3,226 72	
Stationery and printing	17 52	
Supplies	38 15	
*Automobile, storage, supplies, repairs, etc	1,158 95	
Miscellaneous	3 20	
Disinfecting and quarantining acute contagious diseases	200 08	
Postage	20 00	
Diphtheria antitoxin	935 63	
Diphtheria intubation	208 00	
Total disbursement for prevention of communicable diseases		$5,808 25

INFANT MORTALITY.

Salaries	$5,694 60	
Stationery and printing	18 01	
Supplies	24 53	
Milk Station	213 22	
Total disbursement for infant mortality		$5,950 36

TUBERCULOSIS CAMPAIGN.

Salaries	$2,557 51	
Stationery and printing	8 31	
Medicines	75 50	
Supplies	216 94	
Fumigators	93 75	
Miscellaneous	14 91	
Total disbursement for tuberculosis campaign		$ 2,966 92

MEDICAL INSPECTION OF SCHOOLS.

Salaries		$ 1,997 50

FOOD INSPECTION.

Salaries	$2,463 94	
Stationery and printing	101 46	
Miscellaneous	22 27	
Total disbursement for food inspection		$ 2,587 67

DAIRY AND MILK INSPECTION.

Salaries	$2,893 12	
Stationery and printing	6 70	
*Automobile, storage, supplies, repairs, etc.	667 62	
Traveling expenses	1,041 36	
Horse and buggy upkeep	340 65	
Total disbursement for Dairy and Milk Inspection		$ 4,949 45

SANITARY INSPECTION.

Salaries	$8,624 34	
Stationery and printing	18 44	
Supplies	31 68	
*Automobile, storage, supplies, etc.	1,149 68	
Postage	2 95	
Total disbursement for Sanitary Inspection		$ 9,827 09

LABORATORY.

Salaries	$2,258 94	
Stationery and printing	2 90	
Chemicals and supplies	278 03	
Postage	16 12	
Fixtures	135 00	
Miscellaneous	29 85	
Total disbursement for Laboratory		$ 2,720 84

VITAL STATISTICS.

Salaries	$1,394 96	
Stationery and printing	49 23	
Total disbursement for Vital Statistics		$ 1,444 19

EDUCATIONAL CAMPAIGN

Stationery and printing	$ 66 00	
Supplies	24 00	
State Fair exhibit	59 74	
Total disbursement for Educational Campaign		$ 149 74

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* New machines bought.

PLUMBING INSPECTION.

Salaries	$2,893 12	
Stationery and printing	11 41	
Automobile—storage, supplies, repairs, etc.	482 07	
Total disbursement for Plumbing Inspection		$ 3,386 60

MEDICAL TREATMENT—INDIGENT SICK.

Salaries	$ 1,900 00
Total	$ 51,326 72

SPECIAL VACCINATION.

Smallpox Quarantine.

Pay roll	$742 86	
Food supplies	114 31	
Household supplies	13 95	
Fuel	10 00	
Repairs	243 12	
Telephone	97 50	
Vaccine	326 11	
Vaccinators	9 69	
Miscellaneous	29 80	
		$1,587 34

LEPER QUARANTINE.

Food supplies	$175 38	
Household supplies	13 30	
Clothes	12 50	
		$ 201 18
Total		$ 1,788 52

TABLES

AND

SUBSIDIARY REPORTS

TABLE

Showing Number of Marriage Licen

MONTH	1908		1909		1910		1911	
	White	Colored	White	Colored	White	Colored	White	Colored
January	44	34	37	28	42	30	52	42
February	43	22	45	51	42	36	53	45
March	34	24	37	72	50	54	37	35
1st Quarter	121	80	119	151	134	120	142	122
April	78	57	79	71	68	62	84	59
May	35	28	36	27	54	41	35	47
June	80	50	54	57	80	82	72	49
2d Quarter	193	135	169	155	202	185	191	155
July	32	47	49	45	55	54	51	53
August	31	34	40	40	48	49	58	44
September	44	51	45	54	58	64	60	46
3d Quarter	107	132	134	139	161	167	169	143
October	63	35	64	41	84	57	90	58
November	59	49	68	60	88	78	87	53
December	71	77	91	73	81	69	101	90
4th Quarter	193	161	223	174	253	204	278	211
Total	614	508	645	619	750	676	780	631
Yearly totals	1,122		1,264		1,426		1,411	

No. 1

ses Is ued, 1908 to 1917 Inclusive.

1912		1913		1914		1915		1916		1917	
White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
58	36	48	51	24	30	66	42	68	73	85	60
55	32	53	48	48	47	71	55	77	84	59	71
36	59	61	61	39	48	46	45	80	81	80	65
149	127	162	160	111	125	183	142	225	238	224	196
82	85	66	71	102	60	96	91	104	107	166	141
56	50	49	65	55	49	45	46	107	100	96	73
98	79	99	71	95	105	114	90	154	102	176	100
236	214	214	207	252	214	255	227	365	309	438	314
60	65	65	54	53	54	65	55	64	74	102	105
65	59	54	52	60	52	59	59	65	50	100	84
70	84	74	75	79	85	85	78	97	87	107	77
195	208	193	181	192	191	209	192	226	211	309	266
90	50	91	60	105	66	113	66	125	82	126	81
91	84	107	64	103	95	149	91	124	93	130	77
102	125	95	89	106	82	162	127	115	141	204	146
283	259	303	213	314	243	424	284	364	316	460	304
863	808	872	761	869	773	1,071	845	1,180	1,074	1,431	1,080
1,671		1,633		1,642		1,916		2,254		2,511	

TABLE No. 2.

*Births Reported During 1917, With Sex and Color.**

MONTH	WHITE		COLORED		TOTAL		Grand
	Male	Female	Male	Female	Male	Female	Total
January	110	106	52	53	162	159	321
February	93	99	66	57	159	156	315
March	124	101	64	65	188	166	354
April	109	103	52	39	161	142	303
May	94	60	42	40	136	100	236
June	90	98	41	41	131	139	270
July	139	105	68	54	207	159	366
August	122	109	57	56	179	165	344
September	107	117	59	56	166	173	339
October	108	87	54	56	162	143	305
November	103	95	46	50	149	145	294
December	113	144	65	68	178	212	390
Total	1,312	1,224	666	635	1,978	1,859	3,837

* Stillbirths are not included in any of the tables of births or deaths.

TABLE No. 2A.

Giving Birth Rate During 1917, by Color.

COLOR	POPULATION (Official Estimate U. S. Bureau of the Census)	NUMBER OF BIRTHS			BIRTH RATE PER 1,000 INHABITANTS
		Male	Female	Total	
White	100,570	1,312	1,224	2,536	25.22
Colored	58,130	666	635	1,301	22.38
Total	158,700	1,978	1,859	3,837	24.18

TABLE No. 3

Attendants at Birth.

BY WHOM REPORTED	WHITE		COLORED		TOTAL		GRAND
	Male	Female	Male	Female	Male	Female	TOTAL
Physician	1,165	1,064	262	267	1,427	1,331	2,758
Midwife	147	160	404	368	551	528	1,079
Total	1,312	1,224	666	635	1,978	1,859	3,837

TABLE No. 4.

Stillbirths by Months.

MONTH	White	Colored	Total
January	12	13	25
February	13	12	25
March	12	14	26
April	6	18	24
May	6	14	20
June	7	11	18
July	12	11	23
August	9	11	20
September	12	15	27
October	8	19	27
November	8	12	20
December	1	14	15
Total	106	164	270

TABLE No. 5.

Stillbirths by Years, Since 1908

YEAR	White	Colored	Unknown Color	Total
1908	109	165	0	274
1909	76	195	0	271
1910	95	189	0	284
1911	87	186	0	273
1912	111	192	0	303
1913	85	185	0	270
1914	106	181	5	292
1915	92	205	1	298
1916	103	180	0	283
1917	106	164	0	270

TABLE No. 6.

Cases Examined by Coroner and Assistant Coroner.

SEX	White	Colored	Unknown Color	Total
Male	90	138	2	230
Female	49	119	0	168
Unknown sex	0	0	0	0
Total	139	257	2	398

Fetuses Viewed by Coroner.

SEX	White	Colored	Unknown Color	Total
Male	0	2	0	2
Female	0	1	0	1
Unknown sex	0	0	0	0
Total	0	3	0	3

Stillbirths Viewed by Coroner.

SEX	White	Colored	Unknown Color	Total
Male	0	5	0	5
Female	1	2	0	3
Unknown sex	0	0	0	0
Total	1	7	0	8

TABLE No. 7

Deaths for the Year Ending December 31, 1917, Classified by Color and Sex, and Whether Residents or Non-Residents of Richmond.[*]

SEX	RESIDENTS OF RICHMOND			NON-RESIDENTS OF RICHMOND			TOTAL NUMBER OF DEATHS, INCLUDING NON-RESIDENTS		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
Male	684	629	1,313	122	31	153	806	660	1,466
Female	684	688	1,372	78	20	98	762	708	1,470
Total	1,368	1,317	2,685	200	51	251	1,568	1,368	2,936

[*] Stillbirths are not included in any of the tables of births or deaths.

TABLE No. 8.

Giving Death Rate, with Non-Residents Included and Excluded

COLOR	Population U. S. Bureau of the Census)	ACTUAL NUMBER OF DEATHS		DEATH RATE PER 1,000	
		Non-Residents Included	Non-Residents Excluded	Non-Residents Included	Non-Residents Excluded
White	100,570	1,568	1,368	15.59	13.60
Colored	58,130	1,368	1,317	23.53	22.66
Total	158,700	2,936	2,685	18.50	16.92

TABLE No. 9.

Population of Richmond, Va., 1870-1918.

(Official Estimates of the U. S. Bureau of the Census.)

YEAR	White	Colored	Total	YEAR	White	Colored	Total
1870*	27,928	23,110	51,038	1895	50,914	32,304	83,218
1871	28,712	23,582	52,294	1896	51,290	32,294	83,584
1872	29,496	24,054	53,550	1897	51,666	32,284	83,950
1873	30,280	24,526	54,806	1898	52,042	32,274	84,316
1874	31,064	24,998	56,062	1899	52,418	32,264	84,682
1875	31,846	25,470	57,313	1900†	52,879	32,285	85,164
1876	32,632	25,942	58,574	1901	53,850	32,690	86,540
1877	33,416	26,414	59,830	1902	54,821	33,095	87,916
1878	34,200	26,886	61,086	1903	55,792	33,500	89,292
1879	34,984	27,358	62,342	1904	56,763	33,905	90,668
1880*	35,765	27,835	63,600	1905	57,734	34,310	92,044
1881	37,092	28,287	65,379	1906	58,706	34,715	93,421
1882	38,419	28,739	67,158	1907†	70,429	42,984	113,413
1883	39,746	29,191	68,937	1908	71,401	43,389	114,790
1884	41,073	29,643	70,716	1909	72,373	43,794	116,167
1885	42,400	30,095	72,495	1910‡	81,108	46,881	127,989
1886	43,727	30,547	74,274	1911	82,205	47,516	129,721
1887	45,054	30,999	76,053	1912	83,303	48,150	131,453
1888	46,381	31,451	77,832	1913	84,401	48,784	133,18
1889	47,708	31,903	79,611	1914	85,498	49,419	134,917
1890*	49,034	32,354	81,388	1915‡	98,018	56,656	154,674
1891	49,410	32,344	81,754	1916	99,294	57,393	156,687
1892	49,786	32,334	82,120	1917	100,570	58,130	158,700
1893	50,162	32,324	82,486	1918	101,846	58,867	160,713
1894	50,538	32,314	82,852				

* Census year.

† The population given for the census years 1900 and 1910 are midyear (July 1st) estimates. The actual census of 1900 gave a population of 85,050; that of 1910, a population of 127,628 as of June 1st and April 15th, respectively. The midyear estimates for these years will be used by the Census Bureau in calculating its official vital statistics rates for these two census years.

‡ Annexation added a population of 18,615 on December 6, 1906; a population of 10,370 on April 15, 1910, and a population of 17,744 on November 5, 1914.

TABLE No. 10.

Civil Condition of Decedents.

CIVIL CONDITION	WHITE		COLORED		Total
	Male	Female	Male	Female	
Single	336	249	366	303	1,254
Married	341	249	221	217	1,028
Widowed	120	261	67	183	631
Divorced	2	3	1	3	9
Unknown	7	0	5	2	14
Total	806	762	660	708	2,936

TABLE No. 11.

Nativity of Decedents.

NATIVITY	WHITE		COLORED		Total
	Male	Female	Male	Female	
Virginia	627	613	584	643	2,467
ther parts of the United States	112	103	57	45	317
Armenia	1	0	0	0	1
Asia	1	0	0	0	1
Austria	1	1	0	0	2
Canada	4	1	0	0	5
England	9	3	0	0	12
France	2	2	0	0	4
Germany	10	11	0	0	21
Ireland	9	11	0	0	20
Italy	4	4	0	0	8
Norway	1	0	0	0	1
Russia	8	3	0	0	11
Scotland	2	3	0	0	5
South America	1	0	0	0	1
Syria	2	2	0	0	4
Unknown	12	5	18	20	55
West Indies	0	0	1	0	1
Total	806	762	660	708	2,936

TABLE No. 13.

By Whom Certified.

BY WHOM CERTIFIED	WHITE		COLORED		Total
	Male	Female	Male	Female	
Physiciaw	716	718	531	596	2,561
Coroner	90	44	129	112	375
Total	806	762	660	708	2,936

TABLE No. 14.

Giving Mortality for Each Month of the Year, and the Relative Mortality of Each Month Reduced to a Standard of 100.

MONTH	WHITE		COLORED		Total	Relative Mortality*
	Male	Female	Male	Female		
January	90	87	69	90	336	134
February	72	68	57	60	257	114
March	54	69	56	67	246	99
April	81	60	53	54	248	103
May	55	61	60	44	220	88
June	52	50	62	67	231	96
July	87	63	59	56	265	106
August	60	49	55	68	232	93
September	61	61	50	50	222	92
October	59	60	42	51	212	85
November	60	59	50	46	215	89
December	75	75	47	55	252	101
Total	806	762	660	708	2,936	

* The relative mortality for each month as calculated in this table takes into account the actua number of days in each month.

TABLE No. 15

Showing the Number of Deaths Monthly, of the Two Races, from 1908 to 1917, Inclusive.

MONTH	1908		1909		1910		1911		1912		1913		1914		1915		1916		1917	
	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
January	126	142	95	90	163	131	107	114	123	136	120	131	116	148	135	146	148	131	177	159
February	107	128	87	89	124	108	110	88	125	107	145	90	109	110	149	115	148	116	140	117
March	110	113	110	128	113	105	109	140	139	114	126	117	130	138	163	120	146	143	123	123
April	97	90	102	111	108	110	106	100	111	108	110	110	127	120	159	111	144	125	141	107
May	111	107	110	105	123	128	111	119	102	91	105	112	94	113	133	102	122	129	116	104
June	113	127	123	90	143	146	139	111	91	99	131	146	123	124	108	123	135	128	102	129
July	113	106	115	114	129	129	136	137	107	152	115	112	127	112	117	113	150	127	150	115
August	112	93	77	99	91	124	119	101	116	106	101	112	89	97	108	97	129	127	109	123
September	91	75	73	82	116	98	93	105	117	113	98	100	92	93	107	107	129	113	122	100
October	92	78	97	107	95	113	112	117	111	108	122	84	87	104	147	107	104	121	119	93
November	91	82	100	98	116	115	118	110	98	110	101	102	106	96	107	91	133	95	119	96
December	99	83	111	91	150	109	117	99	132	99	137	91	96	107	143	114	138	110	150	102
Total	1,262	1,224	1,200	1,204	1,471	1,416	1,377	1,341	1,372	1,343	1,411	1,307	1,296	1,362	1,576	1,346	1,626	1,465	1,568	1,368
Grand total	2,486*		2,404*		2,887*		2,718*		2,715*		2,718*		2,658*		2,922*		3,091*		2,936*	

* Non-residents (167 in 1908; 219 in 1909; 331 in 1910; 237 in 1911; 290 in 1912; 297 in 1913; 256 in 1914; 268 in 1915; 290 in 1916, and 251 in 1917). Eliminating these, as in previous years, the total deaths were: 2,319 in 1908; 2,185 in 1909; 2,556 in 1910; 2,451 in 1911; 2,425 in 1912; 2,421 in 1913; 2,402 in 1914; 2,654 in 1915; 2,801 in 1916, and 2,936 in 1917.

TABLE No 16.

Deaths for the Year Ending December 31, 1917—Classifie! by Causes, Months Color, and Sex.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
I.—GENERAL DEASES																			
1. Typhid fever	1							4	2	2	1	1	0	4	4	2	5	7	11
4. Malaria								3			1		2	1	3	0	1	1	4
6 Measles			2	2	2								0	1	1	2	3	5	6
7. Scarlet fever										1			0	1	1	0	0	0	1
8. Whooping cough	3	6	9	5	2	3	4	4	2	3	1	2	8	6	14	12	18	30	44
9. Diphtheria and croup	3							1	1	2		2	4	4	8	0	1	1	9
10. Influenza	5	7	3	3	2						3	5	7	5	12	8	8	16	28
13. Cholera nostras							1			1			0	0	0	1	1	2	2
14. Dysentery	1	1		1	1	5	5	1	1		1	1	6	5	11	3	4	7	18
18. Erysipelas			2	1	1	1				1			1	3	4	1	1	2	6
19. Chickenpox					1								0	1	1	0	0	0	1
20. Purulent infection and septicemia		1	1	2	1	1		1	2		2		5	3	8	1	2	3	11
24. Tetanus	1					2							1	1	2	0	1	1	3
26. Pellagra	1			1	1	1	5	1	2		6	2	5	6	11	1	8	9	20
28. Tuberculosis of the lungs	27	26	22	20	17	23	26	17	15	20	17	18	46	59	105	63	80	143	248
29. Acute miliary tuberculosis	1	1	2		1	1	1	3		1		1	2	1	3	3	6	9	12
30. Tuberculous meningitis	2	2	2	4	2		3	1	5	2		1	12	3	15	5	4	9	24
31. Abdominal tuberculosis	1	1		1	4	1	1	2	1		1	1	1	8	9	3	2	5	14
32. Pott's disease								1					0	0	0	1	0	1	1
33. White swellings						1	1						1	0	1	1	0	1	2
34. Tuberculosis of other organs	1				1						1		0	2	2	1	0	1	3
36. Rickets	1	1											0	0	0	1	1	2	2
37. Syphilis	2	8	5	7	4	5	6	6	7	8	5	2	15	4	19	34	12	46	65
38. Gonococcus infection			1			1							0	0	0	0	2	2	2
39. Cancer of the buccal cavity			1		1	1							2	0	2	1	0	1	3
40. Cancer of the stomach and liver	6	2	1	3	4	4	6	1	4	3	1	4	15	14	29	2	8	10	39
41. Cancer of the peritoneum, intestines, rectum	2	1	3	1			2	1			1	2	4	7	11	0	2	2	13
42. Cancer of the female genital organs	2	2	4	1		2	2	2	1	2	2	3	0	14	14	0	9	9	23
43. Cancer of the breast	1		2		1				1		1	3	0	7	7	0	2	2	9
44. Cancer of the skin	1					1		1					1	2	3	0	0	0	3
45. Cancer of other or unspecified organs	1	4	4		2	2	3	1			3	3	13	3	16	2	5	7	23
47. Acute articular rheumatism			1	2	1	2						1	2	1	3	2	2	4	7
48. Chronic rheumatism and gout		1	1	1			1			1			2	2	4	0	1	1	5

50. Diabetes	6	4	1	6	1	2	1	....	2	4	....	2	13	15	28	0	1	1	29
51. Exopthalmic goitre	....	1	....	....	....	....	1	....	....	....	2	....	0	3	3	0	1	1	4
53. Leuchaemia	1	....	....	....	1	1	....	....	....	....	2	1	2	3	5	1	0	1	6
54. Anemia, chlorosis	....	1	1	....	3	1	1	....	....	1	....	3	3	3	10	0	1	1	11
55. Other general diseases	....	....	1	1	....	....	1	....	....	....	....	....	1	1	2	0	1	1	3
56. Alcoholism (acute or chronic)	1	....	....	....	....	....	....	1	....	1	....	1	4	0	4	0	0	0	4
59. Other chronic poisonings	....	1	....	....	....	....	....	....	....	....	....	....	0	1	1	0	0	0	1
II.—DISEASES OF THE NERVOUS SYSTEM.																			
60. Encephalitis	....	....	....	....	....	....	1	....	....	....	....	....	0	1	1	0	0	0	1
61. Simple meningitis	1	2	1	2	1	3	1	....	....	....	....	....	6	2	8	2	1	3	11
62. Locomotor ataxia	....	1	....	....	....	....	1	1	....	....	....	1	4	0	4	0	0	0	4
63. Other diseases of the spinal cord	2	....	....	1	....	3	....	1	1	2	....	1	3	1	4	4	3	7	11
64. Cerebral hemorrhage, apoplexy	21	30	13	11	20	22	11	17	13	19	19	17	55	64	119	36	58	94	213
65. Softening of the brain	1	2	1	1	....	1	....	1	1	1	1	....	2	7	9	0	1	1	10
66. Paralysis without specified cause	....	....	1	1	....	1	2	1	1	....	....	1	1	2	3	3	2	5	8
67. General paralysis of the insane	1	....	....	....	....	....	....	....	1	....	....	....	1	0	1	1	0	1	2
68. Other forms of mental alienation	....	....	....	....	....	....	....	2	....	....	....	....	1	0	1	0	1	1	2
69. Epilepsy	....	1	1	....	....	1	1	1	....	....	....	1	1	1	2	3	1	4	6
71. Convulsions of infants	2	3	3	1	....	2	1	2	2	....	....	1	3	0	3	9	5	14	17
74. Other diseases of the nervous system	....	....	2	....	....	1	2	....	2	1	2	2	8	1	9	3	0	3	12
76. Diseases of the ears	2	....	1	....	....	2	....	....	....	3	....	....	2	4	6	0	2	2	8
III.—DISEASES OF THE CIRCULATORY SYSTEM.																			
78. Acute endocarditis	1	1	....	1	2	....	....	1	....	....	1	1	2	1	3	2	3	5	8
7). Organic diseases of the heart	39	30	23	40	32	23	19	25	30	33	29	39	103	116	219	73	70	143	362
80. Angina pectoris	....	1	....	2	1	....	1	2	....	....	....	1	4	3	7	0	1	1	8
81. Diseases of the arteries, atheroma, aneurysm, etc	4	2	1	3	3	1	5	2	4	1	3	7	16	6	22	8	6	14	36
82. Embolism and thrombosis	1	1	....	....	3	2	5	2	1	1	....	1	7	3	10	2	5	7	17
84. Diseases of the lymphatic system	2	1	....	....	1	....	....	....	....	....	1	....	4	1	5	0	0	0	5
IV.—DISEASES OF THE RESPIRATORY SYSTEM																			
88. Diseases of the thryreoid body	....	....	....	....	2	....	1	1	....	....	....	1	0	4	4	0	1	1	5
89. Acute bronchitis	7	4	5	....	1	....	....	....	....	....	....	1	4	2	6	6	6	12	18
90. Chronic bronchitis	....	1	....	2	1	1	....	2	....	1	1	2	1	1	2	5	4	9	11
91. Broncho pneumonia	25	18	16	9	12	4	5	3	6	6	10	9	21	21	42	46	35	81	123
92. Pneumonia	39	24	26	14	13	7	6	2	7	6	20	16	36	29	65	66	49	115	180
93. Pleurisy	2	2	....	1	....	1	1	....	....	....	1	1	5	0	5	3	1	4	9
94. Pulmonary congestion, pulmonary apoplexy	2	2	4	2	1	2	....	1	....	2	1	3	2	3	5	3	12	15	20
95. Gangrene of the lung	....	....	1	....	....	....	....	....	....	....	....	....	0	1	1	0	0	0	1
96. Asthma	2	....	....	2	....	....	....	1	2	....	....	1	0	3	3	0	5	5	8
97. Pulmonary emphysema	....	....	....	....	....	....	....	1	....	....	....	....	1	0	1	0	0	0	1
98. Other respiratory diseases (tuberculosis excepted)	....	....	1	....	2	....	2	1	....	1	....	....	0	1	1	2	4	6	7

TABLE No. 16—CONTINUED.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
V.—DISEASES OF THE DIGESTIVE SYSTEM.																			
99. Diseases of the mouth and annexa							1		3				1	0	1	1	2	3	4
100. Diseases of the pharynx	2		1		1	1	1					1	2	1	3	1	3	4	7
102. Ulcer of the stomach	1			1	1	1	1			1			2	1	3	3	0	3	6
103. Other diseases of the stomach (cancer excepted)	2	1	1		3		4	1	3	2	2	1	5	4	9	4	7	11	20
104. Diarrhea and enteritis (under 2 years)	3			5	2	14	35	28	16	6	3	1	21	24	45	41	27	68	113
105. Diarrhea and enteritis (2 years and over)	1	3	2	2		5	6		2	2	3	2	5	10	15	7	6	13	28
108. Appendicitis and typhlitis	5	3	5	3	1	4	5		4		2	2	13	11	24	4	6	10	34
109. Hernias, intestinal obstructions	3	2	2	1	1	1	4	3	1	1	4	3	11	9	20	1	5	6	26
110. Other diseases of the intestine	1	1	1						1		1		1	2	3	2	0	2	5
111. Acute yellow atrophy of the liver							1						0	1	1	0	0	0	1
113. Cirrhosis of the liver	3	1	3		1	5	2	3		1	2		7	3	10	7	4	11	21
114. Biliary calculi	1		1	1		1		1					1	3	4	0	1	1	5
115. Other diseases of the liver		1	2	2			1	2	1	1			6	3	9	1	0	1	10
116. Diseases of the spleen		1											0	0	0	0	1	1	1
117. Simple peritonitis (nonpuerperal)			1		2		1	1	1				0	2	2	0	4	4	6
118. Other digestive diseases (except cancer, tuberculosis)				1									1	0	1	0	0	0	1
VI.—DISEASES OF THE GENITO-URINARY SYSTEM.																			
119. Acute nephritis	2	2	1	3	4		3	3	2	2	2	2	6	7	13	5	8	13	26
120. Bright's disease	34	12	19	21	17	14	20	23	17	14	18	26	84	80	164	30	41	71	235
122. Other diseases of the kidneys and annexa	1	1	1	1	1	1	1		1	2	1	1	4	4	8	3	1	4	12
123. Calculi of the urinary passages	1		1		2	1					1		3	2	5	0	1	1	6
124. Diseases of the bladder	2							1	1				1	1	2	2	0	2	4
125. Other diseases of the urethra, urinary abscess, etc										1			1	0	1	0	0	0	1
126. Diseases of the prostate	1		2		2	2	2	1	5	1		1	11	0	11	6	0	6	17
129. Uterine tumor (non-cancerous)	1			3				1	1				0	2	2	1	3	4	6
130. Diseases of the uterus	1			1					1				0	2	2	0	1	1	3
131. Cysts and other tumors of the ovary			1				1	1					0	1	1	0	2	2	3
132. Other (nonvenereal) dieases of female genital organs)		1				1			1				0	0	0	0	3	3	3

VII.—THE PUERPERAL STATE.																		
134. Accidents of pregnancy	....	....	....	....	....	1	....	....	....	1	....	....	0	1	1	0	1	1	2
135. Puerperal hemorrhage	1	....	....	....	....	1	....	....	1	1	....	1	0	2	2	0	3	3	5
136. Other accidents of labor	....	....	....	1	....	....	1	....	....	....	....	....	0	0	0	0	2	2	2
137. Puerperal septicemia	2	2	2	1	1	....	1	3	1	1	....	2	0	6	6	0	10	10	16
138. Puerperal albuminuria and convulsions	1	....	1	1	2	1	2	1	1	2	....	1	0	10	10	0	3	3	13
VIII.—DISEASES OF THE SKIN.																		
142. Gangrene	1	1	....	....	1	1	1	....	....	2	2	1	4	1	5	2	3	5	10
143. Furuncle	....	....	1	....	....	....	....	....	....	....	....	....	0	0	0	1	0	1	1
144. Acute abscess	....	....	....	1	....	....	....	....	1	....	....	....	1	0	1	0	1	1	2
145. Other diseases of the skin and annexa	....	....	1	....	....	....	....	....	....	....	....	....	0	0	0	0	1	1	1
IX.—DISEASES OF THE ORGANS OF LOCOMOTION.																		
146. Diseases of the bones (tuberculosis excepted)	....	....	....	1	2	....	....	....	....	....	....	1	2	0	2	2	0	2	4
X.—MALFORMATIONS.																		
150. Congenital malformations (still births not included)	2	....	1	3	4	....	3	....	....	1	2	1	9	6	15	1	1	2	17
XI.—DISEASES OF EARLY INFANCY.																		
151. Congenital debility, icterus and sclerema	19	13	9	18	4	15	20	14	24	21	12	15	65	34	99	47	38	85	184
152. Other diseases peculiar to early infancy	2	1	1	....	1	....	....	1	....	3	....	1	2	4	6	1	3	4	10
153. Lack of care	....	....	....	1	....	....	....	1	....	....	....	....	0	0	0	1	1	2	2
XII.—OLD AGE.																		
154. Senility	2	1	....	1	3	4	2	3	3	5	2	4	9	12	21	4	5	9	30
XIII.—EXTERNAL CAUSES																		
155. Suicide by poison	1	1	1	2	....	....	....	....	....	....	1	....	3	2	5	0	1	1	6
157. Suicide by hanging or strangulation	....	....	....	....	....	....	....	....	1	....	....	....	1	0	1	0	0	0	1
158. Suicide by drowning	....	....	....	....	....	....	....	....	....	....	1	....	0	0	1	1	0	1	1
159. Suicide by firearms	....	1	2	1	1	1	....	....	....	1	....	....	6	1	7	0	0	0	7
160. Suicide by cutting or piercing instruments	....	....	....	....	....	1	....	....	....	....	....	....	0	1	1	0	0	0	1
164. Poisoning by food	....	1	....	....	....	....	....	....	....	....	....	....	1	0	1	0	0	0	1
165. Other acute poisonings	....	....	....	....	....	1	....	....	1	....	....	2	1	1	2	0	2	2	4
167. Burns	2	1	2	2	1	....	....	2	1	....	3	5	2	13	15	0	4	4	19
168. Absorption of deleterious gases	1	3	3	1	1	1	....	....	....	1	1	2	4	4	8	2	4	6	14
169. Accidental drowning	....	....	....	....	....	1	3	....	....	....	1	....	3	0	3	2	0	2	5
170. Traumatism by firearms	1	....	....	1	1	....	....	1	....	1	1	1	3	0	3	3	1	4	7

TABLE No. 16.—*Continued*

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Tota	
EXTERNAL CAUSES—Continued.																			
172. Traumatism by fall			1	1	1	1	1	2	3	1			4	4	8	1	2	3	11
173. Traumatism in mines and quarries												1	0	0	0	1	0	1	1
174. Traumatism by machines				1			1	1					1	0	1	2	0	2	3
175. Traumatism by other crushing	3	4	3	1	4	2	1	2	3	1	5	2	17	5	22	8	1	9	31
177. Starvation	1				1			1					1	1	2	0	1	1	3
178. Excessive cold	1												0	0	0	1	0	1	1
179. Effects of heat							1	4					2	1	3	2	0	2	5
182. Homicide by firearms			1			1	1			1	2		1	1	2	1	3	4	6
183. Homicide by cutting or piercing instruments				1	1	1							0	0	0	3	0	3	3
184. Homicide by other means	2		3		1			1	3	1	1		2	1	3	8	1	9	12
185. Fractures cause not specified)		1											0	0	0	0	1	1	1
186. Other external violence				2		1							0	1	1	2	0	2	3
186-A. Legal electrocution						3		1		1			0	0	0	5	0	5	5
XIV.—ILL-DEFINED DISEASES.																			
189. Cause of death not specified or ill-defined	4	1	1	7	3	6	1	3	2	2	2	6	5	1	6	12	20	32	38
Total deaths from all causes	336	257	246	248	220	231	265	232	222	212	215	252	806	762	1,568	660	708	1,368	2,936

TABLE No. 17.

Deaths for the Year Ending December 31, 1917—Among Non-Residents.

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
I. GENERAL DISEASES.																			
1. Typhoid fever												1	0	0	0	0	1	1	1
7. Scarlet fever										1			0	1	1	0	0	0	1
9. Diphtheria and croup										1			1	0	1	0	0	0	1
14. Dysentery					1								1	0	1	0	0	0	1
18. Erysipelas						1							0	1	1	0	0	0	1
20. Purulent infection and septicemia					1				1				1	1	2	0	0	0	2
24. Tetanus						1							0	1	1	0	0	0	1
26. Pellagra					1			1			2	1	1	3	4	0	1	1	5
28. Tuberculosis of the lungs	1	2				1	1	1			1		2	2	4	1	2	3	7
30. Tuberculous meningitis				1	1								2	0	2	0	0	0	2
31. Abdominal tuberculosis		1				1							1	1	2	0	0	0	2
33. White swellings							1						1	0	1	0	0	0	1
37. Syphilis		2	3			1					1		1	1	2	4	1	5	7
38. Gonococcus infection			1										0	0	0	0	1	1	1
39. Cancer of the buccal cavity					1	1							1	0	1	1	0	1	2
40. Cancer of the stomach and liver				1						1			1	1	2	0	0	0	2
41. Cancer of the peritoneum, intestines, rectum								1			1		0	2	2	0	0	0	2
42. Cancer of the female genital organs		1							1				0	2	2	0	0	0	2
45. Cancer of other or unspecified organs		2	2		1	1						1	5	1	6	1	0	1	7
50. Diabetes	1	1		2	1					1		1	3	4	7	0	0	0	7
51. Exophthalmic goitre		1									1		0	2	2	0	0	0	2
53. Leuchaemia											1	1	1	1	2	0	0	0	2
54. Anaemia, chlorosis												1	0	1	1	0	0	0	1
56. Alcoholism (acute or chronic)										1		1	2	0	2	0	0	0	2
II. DISEASES OF THE NERVOUS SYSTEM.																			
61. Simple meningitis		1				1							1	1	2	0	0	0	2
64. Cerebral hemorrhage, apoplexy	1	1						1	1		2	1	3	4	7	0	0	0	7
74. Other diseases of the nervous system			1			1	1				2		5	0	5	0	0	0	5
76. Diseases of the ears	1		1			1							1	2	3	0	0	0	3

TABLE No. 17—Cont'nued

CAUSES OF DEATH	MONTHS												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
III. DISEASES OF THE CIRCULATORY SYSTEM.																			
79. Organic diseases of the heart	1		2	4	2	1	2	2	3	3		2	13	6	19	2	1	3	22
80. Angina pectoris								1					0	0	0	0	1	1	1
81. Diseases of the arteries, atheroma, aneurysm, etc.		1					1						1	1	2	0	0	0	2
82. Embolism and thrombosis												1	1	0	1	0	0	0	1
IV. DISEASES OF THE RESPIRATORY SYSTEM																			
88. Diseases of the thyreoid body												1	0	1	1	0	0	0	1
89. Acute bronchitis	1											1	0	1	1	1	0	1	2
91. Broncho pneumonia	2												1	0	1	0	1	1	2
92. Pneumonia	3	2	2		1	1			1		1	1	7	4	11	1	0	1	12
93. Pleurisy	2					1	1						2	0	2	2	0	2	4
94. Pulmonary congestion, pulmonary apoplexy		1											0	0	0	0	1	1	1
97. Pulmonary emphysema								1					1	0	1	0	0	0	1
V. DISEASES OF THE DIGESTIVE SYSTEM.																			
102. Ulcer of the stomach	1												1	0	1	0	0	0	1
104. Diarrhea and enteritis (under 2 years)									1				0	0	0	1	0	1	1
105. Diarrhea and enteritis (2 years and over)		1											1	0	1	0	0	0	1
108. Appendicitis and typhlitis	4	2	2	1			3		3			1	11	3	14	1	1	2	16
109. Hernias, intestinal obstructions	1		2	1	1	1	1	1	1	1	2	1	5	7	12	0	1	1	13
110. Other diseases of the intestine			1										1	0	1	0	0	0	1
113. Cirrhosis of the liver	1												1	0	1	0	0	0	1
114. Biliary calculi			1		1								1	1	2	0	0	0	2
115. Other diseases of the liver									1	1			1	1	2	0	0	0	2
117. Simple peritonitis (non-puerperal)							1	1					0	1	1	0	1	1	2
118. Other digestive diseases (except cancer, tuberculosis)				1									1	0	1	0	0	0	1
VI. DISEASES OF THE GENITO-URINARY SYSTEM.																			
119. Acute nephritis		1		2									2	0	2	0	1	1	3
120. Brigflt s disease	2		1	1		3	1	1	1	1	1		7	3	10	1	1	2	12
122. Other diseases of the kidneys and annexa		1		1								1	1	2	3	0	0	0	3

122. Calculi of the urinary passages						1					1		0	2	2	0	0	0	2
135. Other diseases of the urethra, urinary abscess, etc										1			1	2	1	0	0	0	1
126. Diseases of the prostate			1		1	2	1	1	2			1	7	0	7	2	0	2	9
130. Diseases of the uterus	1								1				0	1	1	0	1	1	2
131. Cysts and other tumors of the ovary			1										0	1	1	0	0	0	1
VII. THE PUERPERAL STATE.																			
134. Accidents of pregnancy						1							0	0	0	0	1	1	1
137. Puerperal septicemia									1			1	0	0	0	0	2	2	2
139. Puerperal albuminuria and convulsions					1			1	1	1			0	4	4	0	0	0	4
VIII. DISEASES OF THE SKIN.																			
142. Gangrene	1												0	0	0	1	0	1	1
144. Acute abscess				1									0	0	0	0	1	1	1
IX. DISEASES OF THE ORGANS OF LOCOMOTION.																			
146. Diseases of the bones (tuberculosis excepted)				1									0	0	0	1	0	1	1
X. MALFORMATIONS.																			
150. Congenital malformations (stillbirths not included)				1	1		1						1	2	3	0	0	0	3
XI. DISEASES OF EARLY INFANCY.																			
151. Congenital debility, icterus, and sclerema							1		1				1	1	2	0	0	0	2
XIII. EXTERNAL CAUSES.																			
155. Suicide by poison		1		1									2	0	2	0	0	0	2
159. Suicide by firearms		1	1		1								2	1	3	0	0	0	3
167. Burns	1												1	0	1	0	0	0	1
170. Traumatism by firearms	1				1						1		2	0	2	1	0	1	3
172. Traumatism by fall					1		1	1	1				3	0	3	1	0	1	4
173. Traumatism in mines and quarries												1	0	0	0	1	0	1	1
174. Traumatism by machines				1									0	0	0	1	0	1	1
175. Traumatism by other crushing	1		1		1			1	1		2	1	8	0	8	0	0	0	8
182. Homicide by firearms											1		0	1	1	0	0	0	1
184. Homicide by other means					1				1				0	1	1	1	0	1	2
186. Other external violence				1		1							0	1	1	1	0	1	2
186-A. Legal electrocution						3		1		1			0	0	0	5	0	5	5
XIV. ILL-DEFINED DISEASES.																			
189. Cause of death not specied or ill-defined									1				1	0	1	0	0	0	1
Total deaths from all causes among non-residents	27	23	23	21	20	25	17	16	24	14	20	21	122	78	200	31	20	51	251

TABLE No. 18.

Giving Death Rate and Per Cent. of Deaths from Different Causes.

CAUSES OF DEATH	ACTUAL NUMBER OF DEATHS			DEATH RATE PER 1,000 LIVING			PER CENT. OF TOTAL MORTALITY		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
I. General diseases..	376	344	720	3.74	5.92	4.54	23.98	25.15	24.52
II. Diseases of the nervous system and organs of special sense....	170	135	305	1.69	2.32	1.92	10.85	9.87	10.39
III. Diseases of the circulatory system..	266	170	436	2.64	2.92	2.75	16.96	12.42	14.85
IV. Diseases of the respiratory system............	135	248	383	1.34	4.27	2.41	8.61	18.13	13.05
V. Diseases of the digestive system..	150	138	288	1.49	2.38	1.81	9.57	10.08	9.81
VI. Diseases of the genito-urinary system and its annexa..........	209	107	316	2.08	1.84	1.99	13.33	7.82	10.76
VII. The puerperal state............	19	19	38	.19	.33	.24	1.21	1.39	1.29
VIII. Diseases of the skin and cellular tissue........	6	8	14	.06	.14	.09	.38	.58	.48
IX. Diseases of the organs of locomotion..........	2	2	4	.02	.03	.02	.13	.15	.14
X. Malformations....	15	2	17	.15	.03	.11	.96	.15	.58
XI. Early infancy.....	105	91	196	1.04	1.57	1.24	6.69	6.65	6.68
XII. Old age...........	21	9	30	.21	.15	.19	1.34	.66	1.02
XIII. External causes...	88	63	151	.88	1.08	.95	5.61	4.61	5.14
XIV. Ill-defined diseases...........	6	32	38	.06	.55	.24	.38	2.34	1.29
Total deaths from all causes............	1,568	1,368	2,936	15.59	23.53	18.50	100.00	100.00	100.00

TABLE No. 19.

Giving Death Rate and Per Cent. of Deaths at Different Age Periods.

AGE PERIODS	ACTUAL NUMBER OF DEATHS			DEATH RATE PER 1,000 LIVING AT ALL AGES			PER CENT. OF TOTAL MORTALITY		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
Less than 1 day	42	39	81	.42	.67	.51	2.68	2.85	2.76
Between 1 day and 1 week	41	20	61	.41	.34	.38	2.61	1.46	2.08
First week	83	59	142	.83	1.01	.89	5.29	4.31	4.84
2d, 3d, and 4th week	26	29	55	.26	.50	.35	1.66	2.12	1.87
First month	109	88	197	1.09	1.51	1.24	6.95	6.43	6.71
1 to 3 months	37	50	87	.37	.86	.55	2.36	3.65	2.96
3 to 6 months	38	62	100	.38	1.07	.63	2.42	4.53	3.39
6 to 12 months	50	82	132	.50	1.41	.83	3.19	6.00	4.49
First year	234	282	516	2.34	4.85	3.25	14.92	20.61	17.55
Second year	45	67	112	.45	1.15	.71	2.87	4.90	3.81
Third year	16	15	31	.16	.26	.19	1.02	1.10	1.05
Fourth year	11	18	29	.11	.31	.18	.70	1.31	.99
Fifth year	10	8	18	.10	.14	.11	.64	.58	.61
Total under 5 years	316	390	706	3.16	6.71	4.44	20.15	28.50	24.01
5 to 10 years	21	20	41	.21	.34	.26	1.34	1.46	1.40
10 to 15 years	20	19	39	.20	.33	.24	1.27	1.39	1.33
15 to 20 years	32	52	84	.32	.90	.53	2.04	3.80	2.86
20 to 25 years	35	103	138	.35	1.77	.87	2.23	7.53	4.70
25 to 30 years	51	98	149	.51	1.69	.94	3.25	7.16	5.08
30 to 35 years	60	77	137	.60	1.33	.86	3.83	5.62	4.67
35 to 40 years	64	89	153	.64	1.53	.96	4.08	6.51	5.21
40 to 45 years	75	84	159	.74	1.45	1.00	4.78	6.14	5.42
45 to 50 years	77	94	171	.76	1.62	1.08	4.91	6.88	5.82
50 to 55 years	74	96	170	.73	1.65	1.07	4.72	7.02	5.79
55 to 60 years	100	83	183	.99	1.43	1.15	6.38	6.07	6.24
60 to 65 years	133	64	197	1.32	1.08	1.24	8.48	4.68	6.71
65 to 70 years	135	42	177	1.34	.72	1.15	8.62	3.07	6.04
70 to 75 years	129	24	153	1.28	.41	96	8.23	1.76	5.21
75 to 80 years	121	19	140	1.20	.33	.88	7.72	1.39	4.77
80 to 85 years	82	4	86	.81	.07	.54	5.23	.29	2.93
85 to 90 years	32	4	36	.32	.07	.22	2.04	.29	1.23
90 to 95 years	10	4	14	.10	.07	.09	.64	.29	.48
95 to 100 years	1	2	3	.01	.03	.02	.06	.15	.10
Over 100 years	0	0	0	.00	.00	.00	.00	.00	.00
Total	1,568	1,368	2,936	15.59	23.53	18.50	100.00	100.00	100.00

TABLE No. 20.

Showing the Number of Persons Who Died Elsewhere and Were Buried Here and Their Color.

	White	Colored	Total
NON-RESIDENTS	854	114	468

Showing the Number of Persons Who Died Here and Were Buried Elsewhere and Their Color

	White	Colored	Yotal
TRANSIT PERMITS GRANTED	413	223	636

TABLE No. 21.

Showing the Number of Typhoid Fever Cases Reported to the Health Department, and the Number of Deaths for Each Month in 1917.

MONTH	Cases on hand at beginning of month	Cases Reported in Month			Total under treatment	Deaths in Month			Recoveries in month	Total Discharges	Cases on hand at end month
		White	Colored	Total		White	Colored	Total			
January	2	2	0	2	4	1	0	1	2	3	1
February	1	2	0	2	4	0	0	0	1	1	3
March	3	1	0	1	3	0	0	0	4	4	1
April	1	2	0	2	1	0	0	0	1	1	0
May	0	4	0	4	4	0	0	0	0	0	4
June	4	6	5	11	15	0	0	0	8	8	6
July	6	9	4	13	19	0	0	0	9	9	16
August	16	15	8	23	39	4	0	4	13	17	16
September	16	12	2	14	30	1	1	2	20	22	8
October	8	11	4	15	23	2	0	2	14	16	7
November	7	4	4	8	15	1	0	1	9	10	10
December	10	2	1	3	13	1	0	1	8	9	4
Summary for the year	2*	70	28	98	170	10	1	11	89	100	4†

* Cases on hand at the beginning of 1917.

† Cases on hand at the close of 1917.

TABLE No. 22.

Showing Number of Cases of Diphtheria, Scarlet Fever, and Measles Reported to the Health Department, and the Deaths from These Diseases During Each Month of 1917

MONTHS.	DIPHTHERIA						SCARLET FEVER						MEASLES					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January	24	0	24	3	0	3	17	3	20	0	0	0	56	8	64	0	0	0
February	12	1	13	0	0	0	14	0	14	0	0	0	206	11	217	0	0	0
March	5	0	5	0	0	0	5	0	5	0	0	0	449	55	504	0	2	2
April	16	1	17	0	0	0	6	0	6	0	0	0	348	45	393	1	1	2
May	7	0	7	0	0	0	7	0	7	0	0	0	202	34	236	1	1	2
June	4	0	4	0	0	0	4	0	4	0	0	0	51	6	57	0	0	0
July	14	0	14	0	0	0	5	0	5	0	0	0	12	4	16	0	0	0
August	28	0	28	1	0	1	8	1	9	0	0	0	8	1	9	0	0	0
September	73	2	75	1	0	1	16	3	19	0	0	0	1	1	2	0	0	0
October	86	2	88	2	0	2	17	1	18	1	0	1	1	0	1	0	0	0
November	77	3	80	0	0	0	16	2	18	0	0	0	2	0	2	0	0	0
December	40	3	43	1	1	2	14	0	14	0	0	0	15	4	19	0	0	0
Total	386	12	398	8	1	9	129	10	139	1	0	1	1,351	169	1,520	2	4	6

TABLE No. 23.

Showing Number of Cases of Whooping Cough, Chicken-pox, and Smallpox Repo ted to the Health Department, and the Number of Deaths for Each Month of 1917

MONTHS	WHOOPING COUGH						CHICKEN-POX						SMALL-POX					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January	13	5	18	1	2	3	37	3	40	0	0	0	0	0	0	0	0	0
February	20	15	35	1	5	6	19	2	21	0	0	0	0	0	0	0	0	0
March	54	23	77	4	5	9	23	6	29	0	0	0	0	1	1	0	0	0
April	57	12	69	1	4	5	11	3	14	0	0	0	0	0	0	0	0	0
May	25	2	27	1	1	2	12	2	14	0	0	0	0	0	0	0	0	0
June	24	2	26	1	2	3	7	2	9	0	0	0	0	0	0	0	0	0
July	27	1	28	3	0	3	12	0	12	0	0	0	0	2	2	0	0	0
August	6	0	6	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
September	1	1	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
October	7	0	7	3	0	3	4	0	4	0	0	0	0	1	1	0	0	0
November	8	0	8	1	0	1	39	1	40	0	0	0	0	0	0	0	0	0
December	5	3	8	1	1	2	39	10	49	0	0	0	0	0	0	0	0	0
Total	247	64	311	22	21	43	203	29	232	0	0	0	0	4	4	0	0	0

TABLE No 24.

Meteorological Observations, 1917.[*]

MONTH	Highest Degree	Lowest Degree	Mean Degree	Rainfall in Inches.
January	65	16	40	2.98
February	75	4	38	2.28
March	80	26	47	5.97
April	90	31	57	2.56
May	91	41	61	4.59
June	94	52	74	5.31
July	96	62	77	6.28
August	95	56	76	2.74
September	89	42	65	4.62
October	83	28	55	3.78
November	73	21	44	0.44
December	59	-2	30	1.72
Total				43.27

[*] From reports of United States Weather Bureau.

REPORT OF THE MEDICAL INSPECTOR.

Dr. Roy K. Flannagan,

Chief Health Officer, Richmond, Virginia.

Sir.—I have the honor to submit herewith the report of the Substitute Medical Inspector for the year ending December 31, 1917.

This report covers the work of my predecessor, Dr. H. S. Stern, during the first six and a half months of the year and of myself from June 15, 1917, to December 31, 1917.

My predecessor received an appointment in the Medical Reserve Corps and joined the colors, as Lieutenant-Surgeon, on June 15, 1917, being granted an indefinite leave by the Administrative Board.

The report which follows relates to the work done during Dr. Stern's incumbency in office, as obtained from the files in the Health Department, and to the work done by the present Medical Inspector.

The following table shows the number of visits made which have to do with contagious diseases and other causes.

TABLE No. 1.

Table Showing Visits Made by Medical Inspector in 1917.

MONTH	Typhoid Fever	Diphtheria	Scarlet Fever	Measles	Chickenpox	Smallpox	Smallpox Vaccinations	Typhoid Vaccinations	Poliomyelitis	Other Causes	Total
January	2	24	20	64	40	0	0	0	0	35	185
February	2	13	14	217	21	0	0	0	0	60	327
March	1	5	5	504	29	1	0	0	0	60	605
April	2	17	6	393	14	0	0	0	0	60	492
May	4	7	7	236	14	0	0	0	0	30	298
June	11	4	4	57	9	0	0	0	0	49	134
July	13	14	5	16	12	2	110	131	4	79	386
August	23	28	9	9	0	0	0	111	0	91	271
September	14	75	19	2	0	0	11	17	1	84	223
October	15	88	18	1	4	1	50	11	2	125	315
November	8	80	18	2	40	0	2	8	0	387	545
December	3	43	14	19	49	0	0	7	0	298	433
Total	98	398	139	1,520	232	4	173	285	7	1,358	4,214

TABLE No. 2.

Showing Specimens Taken by Medical Inspector.

1917	BLOOD FOR			Spinal Fluid for Poliomyelitis	SWABS FOR DIPHTHERIA CULTURES			
	Malaria	Widal Reaction	Culture of B. Typhosus		Nose and Throat		Skin and Ear	Total
					Diagnosis	Release		
January	1	4	3	0	40	54	1	103
February	1	0	4	0	17	43	0	65
March	1	1	1	0	40	22	0	65
April	1	2	0	0	19	24	0	46
May	4	6	1	0	26	27	0	64
June	8	10	8	0	21	13	1	61
July	18	17	14	0	12	17	2	80
August	22	16	12	0	56	25	0	131
September	6	4	5	0	20	35	8	78
October	2	2	1	0	25	155	1	186
November	5	16	14	0	172	175	2	384
December	0	0	3	0	14	78	7	102
Total	69	78	66	0	462	668	22	1,365

There is, in addition to the work scheduled in the foregoing tables, a large amount of work which cannot be tabulated or listed.

TYPHOID FEVER.

The year 1917 showed a decided decrease in the number of cases of typhoid; June, July and August being the months in which the greatest number occurred.

The following tables are self-explanatory.

TABLE No. 3.

Typhoid Fever in Richmond in 1917.

	White	Colored	Total
Cases brought over from 1916	2	0	2
Total number of cases	69	29	98
Total number treated during 1917	70	28	98
Cases probably contracted in the city	46	24	70
Cases contracted out of the city	23	5	28

TABLE No. 3-A.

Deaths from Typhoid Fever in 1917.

	White	Colored	Total	Death Rate 100,000
All deaths in city	4	7	11	6.9
Cases probably contracted in city	1*	4	5	3.1
Cases contracted outside	3	3	6	3.8

* Case brought over from 1916. Died January 8, 1917.

TABLE No. 4.

Table Showing Deaths and Death Rate from Typhoid Fever in 1917.

	No. of Deaths	Death Rate Per 100,000
Total deaths	11	6.9
White	4	4.0
Colored	7	12.0
Contracted in Richmond	5	3.1
White	1	1.0
Colored	4	6.8
Contracted out of Richmond	6	3.7
White	3	2.9
Colored	3	5.1

TABLE No. 5

Table Showing the Case Fatality of Typhoid Fever in 1917.

CASES	No. of Cases	No. Cases Terminated	Deaths	Case Fatality Per Cent.
On hand January 1, 1917	2	2	0	0
Reported in 1917	98	98	11	11.2
Total under treatment in 1917	100	100	11	11.0
Cases contracted in 1917:				
White	69	69	4	5.8
Colored	29	31	7	24.1
Contracted in Richmond (estimated)	70	67	5	10.0
Contracted out of Richmond (estimated)	28	31	6	14.2

TABLE No. [illegible].

Showing the Number of Cases, Deaths, and Death Rate from Typhoid Fever for Each Year from 1907 to 1917, Inclusive.

YEAR	CASES REPORTED			DEATHS			DEATH RATE PER 100,000		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
1907	395	100	495	37	10	47	52 5	23.3	41.4
1908	388	106	494	39	18	57	54.6	41.5	49.7
1909	293	83	376	18	10	28	24.9	22.8	24.1
1910	197	66	263	15	13	28	18.6	27.5	21.9
1911	188	63	251	16	7	23	19.6	14.7	17.7
1912	147	61	208	16	6	22	19.4	12.5	16.7
1913	178	55	233	18	9	27	21.6	18.5	20.3
1914	98	50	148	8	11	19	9.4	22.2	14.1
1915	106	49	155	6	13	19	6.1	22.9	12.3
1916	160	64	224	17	20	37	17.1	34.8	23.9
1917	69	29	98	5	6	11	4.0	12.0	6.9

The distribution of cases in the city was fairly uniform, no particular section of Richmond being entirely free from the disease. One suburban section only (the region known as Providence Park), had an undue proportion—8 cases. This was due to lack of city water and sewers. In my judgment, this section should at least be provided with city water without delay.

A strict adherence to sanitary rules and regulations were emphasized in each individual case. Not only were prophylactic measures urged upon each household, but all persons with whom the patient had lived or associated were advised to undergo vaccine immunization by their physician or at the free Health Department clinic. In the majority of instances, contacts took advantage of the free anti-typhoid and anti-para-typhoid vaccine treatment. This treatment has been far too little understood and utilized, considering its great value in preventing typhoid fever. Only as sanitation and prophylactic measures are advanced, will enlightenment come, and will morbidity and mortality gradually decline. The good effect of these measures is felt in all diseases, of whatever character. It is therefore only by the most persistent, conscientious and painstaking methods that we are to advance along the road to complete public health.

DIPHTHERIA.

There were 378 cases of diphtheria reported among the white population in Richmond during 1917 and 20 among the colored population. Nine deaths are chargeable to this one-time fatal disease. In five of these cases, had they been seen earlier by the attending physician, there is little doubt but that fifty per cent of the total number of deaths could have been avoided. Parents are too prone to take a chance with "sore throat" and "croup" in their children and often neglect to summon their family physician until possiblity of a cure has flown.

Despite the fact of rigid quarantine and isolation, many secondary cases occurred, especially during October and November. During these months, Richmond experienced quite a high morbidity rate, owing to the proximity of several large military camps. Extraordinary conditions have prevailed during the entire fall and early winter. A vast number of strangers have entered Richmond, coming from all parts of the country, and many diphtheria carriers have been found among them. In anticipation of an epidemic of diphtheria, special investigation for carriers was made in the public schools at the beginning of the 1917-1918 session. A culture was taken from each suspicious throat and nose, and in this way many carriers were found, sent home, isolated and given treatment. The school physicians, the district physicians, the Health Department nurses and the school authorities all co-operated in the undertaking.

TABLE No. 7.

Table Showing the Different Types and the Various Combinations of Diphtheria that Occurred During 1917.

	Tonsillar	Nasal	Laryngeal	Tonsillar Nasal	Tonsillar Nasal Laryngeal	Tonsillar Laryngeal	Nasal Laryngeal Skin	Tonsillar Middle Ear	Laryngeal Middle Ear	Middle Ear	Skin Middle Ear Tonsillar Laryngeal	Post-Diphtheria Paralysis	Diphtheria Complicating Scarlet Fever	Total
White....	291	18	10	16	4	4	20	0	0	4	8	1	2	378
Colored..	10	2	4	0	0	0	2	0	0	0	2	0	0	20
Total..	301	20	14	16	4	4	22	0	0	4	10	1	2	398

TABLE No. 8.

Summary of Diphtheria Statistics.

Total number of cases reported	398
White	378
Colored	20
Total number of deaths	9
Case fatality	2.4
Death rate per 100,000	5.7

INFANTILE PARALYSIS (POLIOMYELITIS).

The City Health Department's quarantine laws were actively enforced against infantile paralysis cases, seven of which were reported during the year. All known contacts or suspects were isolated promptly.

The disease during 1917 was of a mild type in the majority of instances. There were no deaths or secondary cases.

INFANTILE PARALYSIS (POLIOMYELITIS).

Table Showing Case Incidence and Deaths by Months.

	July	August	September	October	November	December	Total
Cases..........	4	0	1	2	0	0	7
Deaths.........	0	0	0	0	0	0	0

Table Showing Where Contracted.

	WHITE		COLORED		Total	Deaths	Case Fatality Per Cent
	Male	Female	Male	Female			
Contracted in Richmond	1	3	1	1	6	0	0
Contracted out of Richmond...............	1	0	0	0	1	0	0
Total...............	2	3	1	1	7	0	0

Table Showing Case Incidence and Fatality by Ages.

	Under 1 Yr.	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	Average Age
Cases.............	0	0	2	0	1	1	1	1	1	0	0	5
Deaths...........	0	0	0	0	0	0	0	0	0	0	0	0

SCARLET FEVER.

During 1917, 139 cases were reported, 3 of which were colored, the youngest case being 11 months and the oldest being 37. 1917 lowers the record of 1912 by 82 cases.

There was only one death from this disease during the year, against two during 1916.

TABLE No. 9.

Showing Number of Secondary Cases of Scarlet Fever, Also the Number of Days Elapsing After the Eruption of the Primary Case, or Cases.

Days elapsing after eruption of primary case....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Number of secondary cases.	1	3	2	0	0	2	2	1	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0

TABLE No. 10.

Summary of Scarlet Fever Statistics for 1917.

Total number of cases reported	139
White	136
Colored	3
Total number of deaths	1
Case fatality	.7
Death rate per 100 000	.6

MEASLES.

1916 was an epidemic year for measles, 6,729 cases occurring in the city, showing a mortality of 28.1 in the 100,000.

In 1917, the morbidity rate was the lowest in nine years, totalling 1,520 cases. The mortality rate was 3.8. This is the lowest mark reached in a decade.

TABLE No. 11.

Summary of Measles Statistics.

Total number of cases reported	1,520
White	1,352
Colored	168
Number of deaths	6
Case fatality per cent	.4
Death rate per 100,000	3.8

TABLE No. 12.

Measles Epidemi s (1907–1917, Inclusive).

YEAR	No. Cases Epidemic	No. Deaths Epidemic	Case Fatality Per Cent.	Mortality Per 100,000	Month Prevalent
1907	1,189	35	2.9	30.9	January to April.
1910	2,313	29	1.2	22.7	February to August.
1912	5,446	25	.44	18.9	November, 1912, to June, 1913.
1913					
1916	6,729	38	.56	28.1	January to July.
1917	1,520	6	.4	3.8	January to June.

SMALLPOX.

1917 brought us 4 cases of smallpox, with no deaths.

CHICKENPOX.

There were 232 cases of chickenpox in the city during 1917, an increase over the previous year of 77 cases.

LEPROSY.

Richmond's leper, George Hodges, continues a charge upon the city. During the past three months, this unfortunate man has grown perceptibly worse.

In conclusion, I herewith acknowledge my gratitude and appreciation to my co-workers and to the medical profession of Richmond for timely advice and assistance in the prosecution of my work.

Respectfully submitted,

LUCIEN LOFTON,
Substitute Medical Inspector.

REPORT OF BACTERIOLOGIST.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:—

I have the honor to submit herewith my report as City Bacteriologist for the year ending December 31, 1917.

There were 4,326 specimens examined during the year, a decrease of 233 specimens from last year. These specimens were as follows:

		1915		1916		1917	
Diphtheria	Diagnosis	2,656		1,581		1,402	
	Release	1,325		565		999	
Total			3,981		2,146		2,401
Typhoid Fever	Widal tests	547		571		259	
	Diazo tests	14		12		0	
	Blood cultures	219		316		123	
Total			780		899		382
Tuberculosis			780		863		796
Malarial fever			270		407		186
Other diagnostic tests			50		244		561
Total			5,861		4,559		4,326

In addition to the diagnostic work of the laboratory, 2,139 samples of milk and cream were examined, making a total of 6,465 examinations for the year.

CULTURES TAKEN FROM SORES EXAMINED FOR SKIN DIPHTHERIA.

RESULT	January	February	April	July	August	September	October	November	December	Total	Percentage
Positive	1	1	0	0	0	0	1	2	1	6	15.4
Negative	2	2	1	2	2	5	9	10	0	33	84.6
Total	3	3	1	2	2	5	10	12	1	39	100.0

BACTERIOLOGICAL EXAMINATION OF MILK.

During the year 1917 bacteriological examination was made of 2,139 samples of milk and cream, as against 2,176 samples examined during 1916, a decrease of 37 samples.

These samples were examined as follows:

January, 205; February, 164; March, 192; April, 156; May, 172; June, 278; July, 149; August, 154; September, 182; October, 154; November, 188; December, 145. Total, 2,139.

Of the 2,139 samples, 56 were samples of milk and cream which had been pasteurized and 2,083 were samples of regular market milk.

Bacteriological Laboratory—Summary of Diagnostic Work for 1917.

MONTHS	PURPOSE OF EXAMINATION	DIPHTHERIA						TYHPOID FEVER						TUBERCULOSIS			MALARIA			Total Examinations of All Kinds
		RESULT OF EXAMINATION							RESULT OF EXAM.					RESULT			RESULT			
		Positive	Negative	Atypical	Specimen Unsatisfactory	Total		TEST	Positive	Negative	Atypical	Total		Positive	Negative	Total	Positive	Negative	Total	
January	Diagnosis	21	101	3	0	125	214	Widal	0	11	0	11	17	12	58	70	0	12	12	313
	Release	18	71	0	0	89		Blood Culture	1	5	0	6								
February	Diagnosis	11	76	2	3	92	150	Widal	0	4	0	4	10	18	53	71	0	2	2	233
	Release	11	46	0	1	58		Blood Culture	1	5	0	6								
March	Diagnosis	3	121	0	1	125	149	Widal	1	4	0	5	7	24	58	82	0	5	5	243
	Release	3	21	0	0	24		Blood Culture	0	2	0	2								
April	Diagnosis	10	64	11	0	85	122	Widal	0	7	1	8	15	22	44	66	0	11	11	214
	Release	8	28	1	0	37		Blood Culture	0	7	0	7								
May	Diagnosis	0	60	0	0	60	88	Widal	2	22	0	24	32	9	68	77	2	12	14	211
	Release	3	25	0	0	28		Blood Culture	1	7	0	8								
June	Diagnosis	3	56	6	1	66	80	Widal	0	45	2	47	55	22	42	64	1	19	20	219
	Release	0	14	0	0	14		Blood Culture	2	5	1	8								
July	Diagnosis	9	24	0	0	33	54	Widal	4	26	2	32	53	15	59	74	4	34	38	219
	Release	2	19	0	0	21		Blood Culture	4	8	9	21								

August.........	Diagnosis........	14	110	1	9	134	175	Widal......	4	49	2	55	84	15	46	61	3	44	47	367
	Release.........	2	39	0	0	41		Blood...... Culture....	4	20	5	29								
September......	Diagnosis........	42	104	4	0	150	264	Widal......	1	20	0	21	33	19	25	44	1	20	21	362
	Release..........	14	99	1	0	114		Blood...... Cu.ture....	3	9	0	12								
October.........	Diagnosis........	65	161	9	5	240	492	Widal......	8	17	5	30	35	18	50	58	1	7	8	593
	Release..........	38	212	2	0	252		Blood...... Culture....	1	4	0	5								
November......	Diagnosis........	58	106	9	0	173	346	Widal......	2	14	2	18	32	21	55	76	0	4	4	458
	Release..........	29	143	1	0	173		Blood...... Culture....	0	13	1	14								
December......	Diagnosis........	25	89	5	0	119	267	Widal......	1	3	0	4	9	16	37	53	2	2	4	333
	Release..........	30	99	19	0	148		Blood...... Culture....	0	5	0	5								
Totals for 1917..	Diagnosis........	......	......	......	......	......	1,402	Widal......	......	......	......	......	259	Positive...		211	Positive...		14	
	Release..........	......	......	......	......	......	999	Blood...... Culture....	......	......	......	......	123	Negative..		585	Negative..		172	
	Total........	......	......	......	......	......	2,401	Total....	......	......	......	......	382	Total.......		796	Total.......		186	3,765

In addition to the above routine examinations, the following examinations were also made:

Diazo Test for Typhoid Fever	2
Para-Typhoid Fever Agglutination Tests	14
Examinations of Water	77
Examinations for Gonorrhea	2
Examinations for Diphtheria among School Children	464
Examinations for Hookworm	2
Total Examinations of all kinds	4,326

TABLE A.

Bacteriological Examination of Regular Market Milk, Showing the Number of Samples in Each Class.

CLASS Bacteria Per C. C.	January	February	March	April	May	June	July	August	September	October	November	December	Total
Below 10,000	67	89	70	93	94	48	55	57	98	83	137	111	1,002
10,000 to 25,000	45	32	44	24	30	43	28	23	28	29	17	14	357
25,000 to 50,000	34	11	22	7	13	34	16	19	17	15	11	5	204
50,000 to 100,000	10	4	10	7	9	27	10	19	5	12	6	4	123
100,000 to 250,000	13	3	11	5	7	48	11	14	13	7	5	0	137
250,000 to 500,000	3	5	9	2	4	25	11	6	4	0	1	1	71
500,000 to 1,000,000	1	0	0	1	2	29	6	5	3	0	1	0	48
1,000,000 to 2,000,000	2	0	1	0	1	11	2	6	0	1	1	0	25
2,000,000 to 3,000,000	0	0	0	0	0	7	1	1	5	0	0	0	14
Number of samples	175	144	167	139	160	272	140	150	173	147	179	135	1,981

TABLE B.

Bacteriological Examination of Regular Market Milk, Showing the Percentage of Samples in Each Class.

CLASS Bacteria Per C. C.	January	February	March	April	May	June	July	August	September	October	November	December	Total
Below 10,000	38.3	61.7	41.9	67.0	58.8	17.7	39.3	38.0	56.7	56.4	76.5	82.2	50.2
10,000 to 25,000	25.7	22.3	26.3	17.3	18.8	15.8	20.0	15.3	16.2	19.7	9.5	10.4	18.0
25,000 to 50,000	19.4	7.6	13.2	5.0	8.1	12.5	11.4	12.6	9.8	10.2	6.1	3.7	11.1
50,000 to 100,000	5.7	2.8	6.0	5.0	5.6	9.9	7.1	12.7	2.9	8.2	3.3	3.0	6.2
100,000 to 250,000	7.4	2.1	6.6	3.6	4.4	17.6	7.9	9.3	7.5	4.8	2.8	0.0	6.9
250.000 to 500,000	1.7	3.5	5.4	1.4	2.5	9.2	7.9	4.0	2.3	0.0	0.6	0.7	3.5
500,000 to 1,000,000	0.6	0.0	0.0	0.7	1.2	10.7	4.3	3.3	1.7	0.0	0.6	0.0	2.4
1,000,000 to 2,000,000	1.2	0.0	0.6	0.0	0.6	4.0	1.4	4.0	0.0	0.7	0.6	0.0	1.2
2,000,000 to 3,000,000	0.0	0.0	0.0	0.0	0.0	2.6	0.7	0.8	2.9	0.0	0.0	0.0	0.5

TABLE C.

Bacteriological Examination of Pasteurized Milk, Showing the Percentage of Samples in Each Class.

CLASS Bacteria Per C. C.	January	February	March	April	May	June	July	August	September	October	November	December	Percentage of total in each class
Below 1,000	16.6	16.7	44.4	75.0	50.0	66.7	50.0	66.7	50.0	0.0	75.0	75.0	42.86
1,000 to 5,000	50.0	66.6	44.4	25.0	50.0	33.3	50.0	33.3	50.0	100.0	25.0	0.0	44.65
5,000 to 10,000	16.6	16.7	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	8.93
10,000 to 25,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.00
25,000 to 50,000	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.78
50,000 to 100,000	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,78
Number of samples	12	6	9	4	2	3	2	3	4	3	4	4	56

TABLE D.

Bacteriological Examination of Grade A Raw Milk, Showing the Percentage of Samples in Each Class.

CLASS Bacteria Per C. C.	January	February	March	April	May	June	July	August	September	October	November	December	Percentage of total in each class
Below 1,000	5.5	14.3	6.2	7.7	10.0	66.7	14.3	100.0	20.0	0.0	80.0	83.3	19.61
1,000 to 5,000	27.9	50.0	12.5	7.7	50.0	33.3	42.8	0.0	80.0	100.0	20.0	16.7	33.33
5,000 to 10,000	27.9	21.4	43.8	61.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.55
10,000 to 25,000	22.2	14.3	12.5	15.4	20.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	13.73
25,000 to 50,000	5.5	0.0	18.8	7.7	10.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	5.88
50,000 to 100,000	5.5	0.0	6.2	0.0	10.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	3.92
100,000 to 250,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.00
250,000 to 500,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.00
500,000 to 1,000,000	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.98
Number of samples	18	14	16	13	10	3	7	1	5	4	5	6	102

Table Showing Bacterial Index of the Market Milk Supply of Richmond for the Years 1914, 1915, 1916, and 1917.

YEAR	January	February	March	April •	May	June	July	August	September	October	November	December	Year
1914	88.8	87.9	90.1	89.2	90.0	89.1	87.6	93.1	91.9	77.0	86.6	79.6	87.6
1915	83.3	83.5	93.3	91.6	92.3	89.1	90.8	87.8	90.0	85.2	92.6	91.0	88.3
1916	79.2	87.5	87.9	87.6	87.9	81.9	79.2	83.0	82.0	88.7	90.4	88.1	85.3
1917	86.7	92.5	86.3	81.7	89.8	61.2	79.1	76.1	76.1	91.9	94.0	99.3	86.2

Respectfully submitted,

S. W. BUDD,
City Bacteriologist

REPORT OF CONSULTANT IN DIPHTHERIA.

Dr. Roy K. Flannagan,
Chief Health Officer, Richmond, Va.

Sir:

I have the honor to submit herewith my report of cases of laryngeal diphtheria seen for the Health Department during the year ending December 31, 1917, also appended tabulated statement of laryngeal cases seen for the Health Department for eleven years, 1907-1917, inclusive.

INTUBATED				NOT INTUBATED			TOTAL			
Recovered	Died	Total	Case Fatality Per Cent.	Recovered	Died	Total	Recovered	Died	Total	CaseFatality Per Cent.
10	1	11	9.0	9	0	9	19	1	20	5.0

Eight of the eleven cases intubated were intubated on first visit. The remaining three, postponed on first visit, subsequently required intubation from two to three hours later. Our custom is to defer intubation as long as it is safe to do so. Very young children sometimes require intubation in spite of the fact that they are getting a sufficient quantity of air, the exertion and fatigue of breathing being more than they can endure for any great length of time.

In only two of the nine cases not requiring intubation was it necessary to make a second visit for observation. Our experience seems to indicate that laryngeal cases occurring secondary to a known diphtheritic involvement of the upper respiratory tract less frequently require intubation than those in which a primary involvement of the larynx occurs. I am disposed to believe that we are frequently in error, however, in making a diagnosis of primary laryngeal diphtheria. I suspect that it is frequently secondary to an undetected involvement of the upper air passages, from which the membrane, if it ever existed, had disappeared, the physician not having been called until the child began to show laryngeal symptoms. Under these conditions, antitoxin necessarily reaches the child late in the case—too late frequently to prevent development of membrane in the larynx—so that intubation is required in what is erroneously regarded a case of primary laryngeal involvement.

Two patients coughed up the tube this year, one on the sixth day, who died of strangulation in half an hour. In response to an urgent call, I reached the patient twenty minutes after being called, but too late to save the child. Unavoidable complications of this sort must inevitably arise when intubation cases are treated in the homes of the patients. This was the only intubation case we lost during the year.

A long felt need will soon be supplied by the erection of a Contagious Disease Hospital, which is now nearing completion. We hope, in the future, to avoid such disasters as the one above recited.

The other case in this year's series that coughed up the tube is, I believe, of sufficient interest to justify the space required to include a brief individual record. A boy, three and a half years old, was intubated September 24th. Extubation was done five days later, followed by reintubation in five minutes. Three days later the tube was coughed up. Reintubation was necessary in two and a half hours. Four days later the tube was again coughed up, reintubation being required in a short while. On the following day the tube was coughed up again. A larger tube was inserted this time and left in place for ten days, when it was removed. Reintubation was done in fifteen minutes. It was impossible for the child to go without the tube, which was therefore left undisturbed for thirty-three days, when extubation was again done. After two hours, reintubation became necessary. This time I re-inserted the tube formerly used, corresponding to the age of the child.

In 108 intubation cases reported since 1907, 93 of which made perfect recoveries, we have not had a chronic tube case. The above case gave every indication of having become hopelessly chronic, and behaved strikingly like those with which one is familiar in a large diphtheria service, such as that of Willard Parker Hospital, New York City. Spontaneous recovery is a remote possibility, and surgical intervention is not usually attended by gratifying results. Financial considerations sometimes offer insurmountable obstacles to securing the services of one of the few specialists who undertake to operate for chronic stenosis of the larynx. Although this child was "up and about," eating well and apparently enjoying a comfortable existence, we know that it is only a question of time when disaster will overtake the chronic tube case. On December 1, the child coughed up the tube, and fortunately was able to go without it, suffering no further inconvenience than hoarseness, which persisted for several weeks. Altogether, this child wore the tube sixty-nine days, and, so far as I can discover, establishes a record for an intubation case that recovered without surgical operation after having worn a tube for more than two months.

Another case, extubated on the sixth day, required reintubation in fifteen minutes. When extubated five days later, considerable temporary stenosis persisted, making it unsafe to leave the case for three and a half hours. Uneventful recovery followed.

A third case requiring reintubation was extubated on the fifth day, but it was found necessary to replace the tube about an hour later. It was necessary for me to be away from the city for a while, and the physician who took charge of the case saw no indication for removing the tube, so upon my return I extubated the child. The tube remained in twenty-five days. Perfect recovery followed its removal. It appears that an intubation tube may be worn for quite a while without damage to the larynx or vocal cords.

One case had the serious and distressing complication of getting the tube plugged by a piece of exfoliated membrane. The patient was reached in time to prevent disaster, but extubation was extremely imperative.

Four cases pursued to recovery a perfectly uneventful course, 3 of which were extubated on the fifth and one on the eighth day, respectively.

Physicians having cases known to be or suspected of being diphtheria should, at the earliest moment possible after the onset of laryngeal symptoms, get in touch with the Medical Inspector, who can render valuable assistance in avoiding delay should the case subsequently need intubation. The fatalities that occur each year from delay in obtaining intubation are deplorable and should be avoided. It is far better to err on the safe side.

Cases of Laryngeal Diphtheria Seen for the Richmond Health Department for Eleven Years, 1907–1917.

YEAR	INTUBATED				NOT INTUBATED			TOTAL			
	Recovered	Died	Total	Case Fatality Per Cent.	Recovered	Died	Total	Recovered	Died	Total	Case Fatality Per Cent.
1907	5	1	6	16.7	1	0	1	6	1	7	14.3
1908	3	1	4	25.0	0	0	0	3	1	4	25.0
1909	5	1	6	16.7	2	0	2	7	1	8	12.5
1910	14	2	16	12.5	4	0	4	18	2	20	10.0
1911	22	1	23	4.4	8	1*	9	30	2	32	6.3
1912	7	2	9	22.2	7	0	7	14	2	16	12.5
1913	7	4	11	36.4	2	0	2	9	4	13	30.8
1914	9	0	9	0.0	9	1†	10	18	1	19	5.3
1915	14	2	16	12.5	9	0	9	23	2	25	8.0
1916	7	1	8	12.5	5	0	5	12	1	13	7.7
1917	10	1	11	9.0	9	0	9	19	1	20	5.0
Total	103	16	119	13.4	56	2	58	159	18	177	10.2

*Congenital stenosis of larynx, making intubation impossible. Died in spite of tracheotomy.

†Neglected septic case, laryngeal symptoms not extreme; died from sepsis in a few hours.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,
Consultant in Diphtheria.

REPORT OF CHIEF NURSE.

Dr. Roy K. Flannagan,
Chief Health Officer, Richmond, Va.:

Sir.—I have the honor to submit herewith my report for the year ending December 31, 1917, briefly reviewing the work of the nursing staff of the Department in connection with—First, Infant Welfare; Second, Tuberculosis; Third, Social Work.

PART I.

Infant Welfare.

The past year, on account of the cold, damp spring and the intense heat of summer following, was an unusually hard one on the babies of Richmond. Many cases of infantile diarrhea occurred. In July alone, there were more cases reported than in the whole year of 1916. We followed our former custom of giving instructions in the proper disposal of the bowel discharges, in personal hygiene, and in the feeding of the infants; and although there were more cases reported, the mortality was lower than in preceding years. In 1916, we had 192 cases reported, with 102 deaths .(8.1 per cent), while the number of cases in 1907 reached 321, with 113 deaths (5.1 per cent).

The appreciation of the nurse which is shown by the laity is a great source of satisfaction to the members of the nursing staff. The nurse is sought by 'phone, by letter and by messenger. One day last summer a postal card was received at the Department from a colored woman. On it she stated that her baby was a month old and no nurse had been to see it, and that she "sholy" wanted one to come. Needless to say, the nurse was sent, and the mother, following instructions, now has a fine healthy infant.

The following table illustrates this branch of our work:

Hours spent in work for the prevention of infant mortality		7,368½
Number of visits for prevention of infant mortality		13,057
Birth certificates investigated		243
Babies on list brought over from 1916		1,069
New babies listed during 1917		1,472
Total number of babies under supervision during year		2,541
Babies dropped from list from different causes		1,345
Number of babies on list at end of year		1,196
Deaths from diarrhea and enteritis among babies brought over from 1916	12	
Deaths from diarrhea and enteritis among new babies listed during 1917	33	
Total number of deaths from diarrhea and enteritis among supervised babies		45
Deaths from all causes among babies brought over from 1916	48	
Deaths from all causes among new babies listed during 1917	73	
Total number of deaths among supervised babies		121

PRENATAL WORK.

There is close co-operation between the nurses of the Health Department and the Instructive Visiting Nurses' Association. The nurses of that organization instruct and give bedside care only to those cases employing physicians. They do not attend those employing midwives. The Health Department nurses give no bedside care, but instruct both the cases employing physicians and those employing midwives.

Every prenatal case listed by our staff who wishes the bedside care of a nurse at confinement and who will either employ a physician or will attend the prenatal clinic at the Medical College of Virginia is referred to the Instructive Visiting Nurses' Association. The nurses of this association then give both the prenatal and the postnatal care, and at the expiration of the puerperium refer the case back to the Health Department for observation and instruction until the infant is one year of age. On the other hand, when a member of the Instructive Visiting Nurses' Association finds a prenatal case that is going to employ a midwife, the case is referred to us for instruction. This leaves the Health Department, with but few exceptions, in charge of a class of patients that furnishes the most difficult problem.

Many interesting cases come under our observation. One case is a mother of two children, who, when our nurse found her, was in the third month of pregnancy. She had an aggravating cough, and to all appearances was in the incipient stage of tuberculosis. After much persuasion, she was induced to attend our tuberculosis dispensary, where, upon examination, the nurse's suspicions were confirmed. The patient was found not only to have tuberculosis, but also a very bad heart lesion. Under careful supervision, she was carried through pregnancy and a safe delivery. The baby was given artificial feeding from birth and will continue under the supervision of the nurse. The mother has been sent to Pine Camp.

During the past year our nurses have listed 240 prenatal cases. Of this number, 27 were referred to the Instructive Visiting Nurses' Association. Among the remaining 213, there were 9 stillbirths, or 4.2 per cent, and 2 miscarriages, or .9 per cent. There were no deaths of mothers. In the city at large there were 3,597 births that did not receive prenatal care from our staff of nurses. Of that number, 270 were stillbirths, or 7.5 per cent, and 38 deaths of mothers from puerperal diseases, giving a mortality of .9 per cent as compared with no mortality in the supervised cases. We have no method of knowing the sum total of miscarriages and abortions in the city as a whole.

The figures would be startling, indeed if there were any way of ascertaining the number of women who become pregnant each year and if every birth and miscarriage were reported. In spite of our strict laws regarding birth registration, there are many infants born that are not reported.

At any rate, we have correct statistics of the cases that come under our personal care. Even if the comparison is not quite fair to the city at large, it proves beyond a doubt that the cases receiving prenatal care have been greatly benefited.

MIDWIVES.

At present the majority of midwives practising in Richmond (and in the State of Virginia) are very ignorant. Many cases of septicemia, opthalmia neonatorum and stillbirths are traceable to their ignorance. I would recommend that a course of instruction be arranged for those who are practising and their permits revoked if they do not attend. A higher standard would thereby be established, and those who could not meet this requirement should be refused registration. The fees of the midwives are so much lower than those of the doctors that they always have plenty of work to do.

MILK STATIONS.

From June 1 to October 1, a milk station and child welfare clinic were maintained at 2429 Venable Street. The money for the salary of the nurse in charge and for the free distribution of milk was furnished by the Federation of Mothers' Clubs, $500.00 having been donated for this purpose. The station was equipped and managed by the Health Department. One of the Department nurses was placed in charge, and this necessitated the employment and training of another nurse for the district work. Dr. J. S. Weitzel held a free baby clinic there three times weekly throughout the summer—a splendid life-saving service.

Three weeks after the establishment of the station on Venable Street, a request came from Dr. L. Karp to open a station at the Zionist Institute, 15 West Clay Street. This was financed entirely by the Zionist Institute, but supervised by the Health Department. It was conducted on the same plan as the first, Dr. Karp holding clinics regularly.

The good accomplished by both of these stations cannot be estimated. Mothers who were not physically able to prepare milk properly sent to these stations for it, and twenty-four hours' feeding, properly prepared, bottled and iced, would be delivered to them. Babies who were not thriving were taken to the clinics, where they were examined, weighed and directions for proper feeding given. Free milk was provided where they could not pay for it. Nursing mothers needing milk to increase their flow yet unable to buy it received it free of charge, or at a nominal price.

The distribution of milk from these two points has been the means of establishing the welfare clinics, which we hope to make permanent. I am not in favor of again distributing prepared milk, as this takes too much responsibility from the average mother. It is much better for the nurse to teach the preparation of the milk for the individual baby in the home.

HOME FOR INFANTS.

Inspection of homes for infants is frequently made by Miss Price, assistant secretary of the State Board of Charities and Corrections, and myself. The three homes now conducted for white children are in excellent condition. It was found necessary to close the fourth home early in the year.

The care of the colored babies is a serious problem. Many mothers are compelled to work in factories or in domestic service. Some have relatives who are willing to attend to the child during the day, but most of the working mothers have to trust to a caretaker who only wants the weekly fee.

Often these babies are herded in poorly ventilated rooms and improperly fed. One place of this kind coming under our notice contained fourteen babies. They were all in one small, poorly ventilated room, and were being fed condensed milk, improperly prepared. Before we could close the place, some of the mothers had to be brought into the Juvenile Court and made to place their children in private homes or get other employment. Some of the babies who had been abandoned were sent to the City Home for adoption.

In March, the Colored Salvation Army opened a nursery (in connection with its other work) on Brook Avenue. This promised to fill the need in that vicinity. Several hundred dollars was raised through the efforts of the Juvenile Protective Association, the Evening Journal and by private subscription, and a colored graduate nurse was placed in charge. The equipment was contributed by the Salvation Army and by private individuals. There is no doubt but that many little lives were saved at this place, unsuitable as it was by reason of its cramped and stuffy location. However, because of inability to secure competent help, the nurse resigned, and the nursery was closed the last of December.

A nursery for colored children is one of our greatest needs and must be developed if our baby death rate is to be lowered. It should be controlled entirely by the city, and a nominal weekly fee should be charged for each child. To take an infant from an insanitary nursery solves no problem. The child must be placed where it will thrive. The city has a definite responsibility to provide the place.

PART II.

Tuberculosis Work.

On August 1, an additional nurse was placed on the Department staff and our tuberculosis work was reorganized. During the year there were 543 cases reported and 309 deaths. It is still very hard to get the physicians to report the cases promptly, and many die without ever having been reported.

Following is a tabulated report:

Hours spent in tuberculosis work	2,410½
Hours spent at dispensary	784½
Hours spent in district	1,636
Number of visits to dispensary cases	3,426

The work of the tuberculosis clinic at the Medical College will be reported by the Chief of that clinic.

PART III.

Social Service.

For many years the city has been furnishing coal, wood and shoes to the very poor. Requests for this aid had come mostly from volunteer social workers. The first of December, the Administrative Board referred all of this work to the Department nurses for investigation. Two nurses were added to the Department, but even with this aid we were swamped, and our regular routine work suffered for a while. We found that the majority of homes from which these appeals for aid came needed the public health nurse more than the alms giver. Many unreported prenatal cases, young infants and cases of tuberculosis were found. Poverty and shiftlessness are two of the best conductors of disease. By reporting insanitary surroundings to the Chief Sanitary Officer, many homes have been put in much better living condition.

In one case, a woman was cooking and sleeping in the basement of her home, where she had a flock of chickens running loose. She said they would freeze out of doors, and that a friend had told her to bring them in the house. It was evident to the nurse that the friend did not intend to suggest that the room be turned into a chicken crop, with all its disagreeable features, but such was the case. Conditions were terrible. The owner was very much insulted because any one should think it insanitary to have chickens on such familiar terms. Needless to say, the sanitary officer was called in.

In many instances, the nurse is not needed, but some one who can help reconstruct the home. Often there are cases of non-support to be taken into the court, employment to be found, or other conditions to be adjusted. I would recommend that a social worker be attached to our staff. She could handle these problems and leave the nursing staff free to their regular duties as public health nurses. We spent 1,807½ hours in this work and made 1,577 visits.

The School of Social Work and Public Health opened its first session in October, and we have from one to four pupils with us all the time for instruction. The school, in return, has opened its doors to our nurses for any (or all) lectures which we wish to attend. We have found these very beneficial.

As you know, there have been many changes in the nursing staff during the past year. In January, Miss Mary Julia Moore, who had been Chief Nurse for five years, resigned, and I was promoted from one of the districts to this position. At that time there was another vacancy, and I had to begin my new duties by training two nurses for the district work.

In May, Dr. E. C. Levy resigned, you being appointed his successor. I would here like to record my personal appreciation of the consideration you have shown to the nurses, as well as to all of the old employees.

In conclusion, I wish to commend the nurses for their excellent work. There are only two nurses on the staff who have been with the Department over two years. One has been with us fifteen months. The period of service of the other five varies from one to ten months.

There is a great demand for experienced public health nurses. The higher salaries paid elsewhere is an inducement to our nurses to seek another field as soon as they have had a few months' experience. If the City Council does not increase the nurses' salaries this year, I fear that this Department will continue to serve as a training school for other localities, and that Richmond will be served by amateurs, constantly changing as they become professionally expert. The longer a nurse remains with the Department, the more valuable she is. It takes from three to six months to thoroughly learn the work and at least a year to see the results of efforts put forth.

Each nurse employed has given the very best that was in her to the work, and, notwithstanding the unusually hard summer, the results have been a source of pride and gratification.

Respectfully submitted,

JESSIE WETZEL FARIS, R. N.,

Chief Nurse.

REPORT OF INSPECTOR OF MILK AND FOOD SUPPLIES.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I herewith submit my report for the year ending December 31, 1917.

In rendering this report, I wish to acknowledge, with gratitude, my obligations to the former Chief Health Officer, Dr. E. C. Levy, for uniform consideration and support in my work of enforcing the food laws, and to deplore the loss that Richmond has suffered in the removal of one who has done so much for the city's welfare. This is said without prejudice to the work of his successor, which speaks for itself.

Since the 1st day of May, 1917, when Dr. Roy K. Flannagan took charge, many changes have been made in the work of food inspection. A score card has been devised for the proper recording of conditions found in hotels, boarding houses, cafes, lunch counters, ice cream parlors, manufactories, soda fountains and places where soft drinks are sold and manufactured. A carbon copy of this score is left with each proprietor. Printed upon the back of this copy is a synopsis of the rules of the Health Department governing these places. An intensive campaign has been conducted all over the city, and great improvement is apparent.

The ordinance adopted by the Council, at my suggestion, making it mandatory for all food and drink purveying establishments to obtain a permit from the Health Department has greatly strengthened our ability to secure co-operation from these places.

I regret to state that Mr. C. J. B. Hare, Assistant Food Inspector, has, during this year, lost much time by reason of sickness, and his physical condition continues such as to greatly incapacitate him for his work. Mr. J. T. Gill, a highly capable Sanitary Officer, has been assigned to assist me, and to his energetic and competent help much of the improvement in conditions is to be credited. The extra help in good inspection rendered by Mr. John Donati during our campaign was also satisfactory in the highest degree.

MARKETS.

Though the markets are not directly under the supervision of this Department, the indirect effect on their conduct by the constant visits of our Inspectors and by our advice and recommendations has resulted in great improvement. Hot-water tanks for cleaning purposes have been installed, and a sheet containing a compilation of the market laws has been placed in the hands of each lease-holder. Large printed cards forbidding the handling of food by customers have also been distributed, with good effect.

RECOMMENDATIONS.

Richmond's greatest single need in connection with her food supply is the necessity for inspection of the meat that is slaughtered by local butchers. Meat coming from without the State is inspected by the United States

Government, but there is no machinery whatsoever to hinder an unscrupulous local butcher from serving to the public meat from diseased animals or from animals that have perhaps died upon their hands. This need should be met.

I recommend that a movement be inaugurated looking to the building of a municipal abattoir and that a regulation be adopted forbidding the sale of meat which has not been inspected and passed by competent authority previous to killing. The inspection could be arranged for on a basis of fees, so as to be largely self-sustaining.

Cold Storage.

I recommend that meats, eggs, poultry, game and fish placed in cold storage be inspected and conspicuously stamped with the date of inspection and storage, for it often happens that deterioration takes place in these products, and the public should be warned.

Butter Milk.

The rules applying to the milk supply of Richmond, the enforcement of which gives to the city milk a cleanliness and quality not surpassed elsewhere, should, in my judgment, apply to butter milk. I recommend that dealers in this product be required to first obtain a permit contingent upon satisfactory conditions of production and handling.

Cows.

I recommend that all owners of cows stabled within the city limits be required to register them at the Health Department, and that rules be adopted compelling as complete cleanliness and sanitation at city cow stables as the Department requires of the outside dairymen selling milk within the city.

It has been very gratifying to this division of public health work to note that there have been fewer complaints of bad conditions this year than in former years, and I can only attribute this to the fact that bad conditions are now, in a large measure, being found and corrected by us at the source of distribution, before the public is aware.

Much of the Inspectors' time has been spent in close inspection of the commission and fish houses, the express offices and the markets; these being the place of wholesale food distribution to the city at large.

Notwithstanding the fact that the city has more than doubled its area and has vastly added to the difficulties of food inspection, the work has not appreciably suffered. Extra help, however, is sadly needed in order to keep up with the advancing public demands for clean food, properly protected.

My tabular report follows:

1917	No. Places Visited	No. Places Passed	No. Places Notified
January	440	....	....
February	390	....	....
March	620*	....	....
April	870	....	....
May	1,010	....	....
June	1,288	645	643
July	774	509	265
August	1,306	966	340
September	533	340	193
October	650	556	94
November	644	566	78
December	2,573	2,375	198
Total	11,098	5,957	1,811
Monthly Average	924–10–12	496–5–12	150–11–12

* In January, February, and March the Assistant Food Inspector was sick.

FOOD PRODUCTS CONDEMNED.

	Lbs.	Value
Fish	34,308	$ 3,237 75
Vegetables	46,378	1,519 75
Poultry	546	105 00
Fruits	18,316	1,477 50
Meats	1,095	165 45
Game	8,336	676 41
Groceries	5,000	500 00
Melons	61,436	800 70
Canned goods	1,250	25 00
Miscellaneous	258	30 40
Milk (458½ gallons)	3,668	137 55
Oysters (64 gallons)	768	75 50
Total	181,359	$8,751 01

FOOD PERMITS.

Permits issued	353
Permits revoked or suspended	3
Amount to Treasurer on account of permits	$ 706 00
Cases to court	47
Fines imposed	$ 216 00

SAMPLES.

Milk to Chemist	2,566
Other samples	57

SUMMARY.

1906 to 1917, Inclusive.

YEAR	Inspections.	Food Condemned. Lbs.	Value of Food Condemned	Samples of Milk Taken	Food Premits	To Treasurer of Richmond
1906	8,882	336,095	$19,480 85	1,282	128	$ 256 00
1907	7,082	150,075	6,005 75	1,388	201	402 00
1908	9,213	311,581	7,551 67	1,473	234	468 00
1909	9,212	110,877	3,590 47	1,531	222	444 00
1910	7,705	90,409	3,284 40	1,614	212	424 00
1911	8,608	123,782	3,564 33	2,029	387	774 00
1912	10,440	251,207	5,869 38	1,674	267	534 00
1913	7,479	163,206	4,380 87	2,592	221	442 00
1914	12,619	179,028	5,341 49	3,403	268	536 00
1915	13,212	126,020	6,936 48	2,282	349	698 00
1916	11,460	109,746	4,342 48	2,425	252	504 00
1917	11,098	181,359	8,751 01	2,566	353	706 00
Total	117,010	2,133,385	$79,099 18	21,259	3,094	$ 6,188 00
Average No. 12 Years	9,750	177,782	$ 6,591 59	2,021	257	$ 515 66

"A"

AN ORDINANCE

(Approved November 15, 1917.)

To amend and re-ordain Section 17 of Chapter 25, Richmond City Code, 1910.

Be it ordained by the Council of the City of Richmond—

1. That Section 17 of Chapter 25, Richmond City Code, 1910, be and the same is hereby amended and re-ordained so as to read as follows:

17. No person shall, within or without the City of Richmond, keep or maintain a stable or stables, or a dairy farm for the purpose of producing milk to be sold or exposed to sale within the limits of the City of Richmond; nor shall any person within the said limits keep or operate a hotel, boarding house, cafe, restaurant, lunch counter, ice cream parlor or manufactory, soda fountain, or place where soda water or soft drinks are sold or manufactured; or a room, stall, store, or other place where any soda water, soft drinks, food or victauls are sold, nor shall any person within the limits of the police jurisdiction of the City of Richmond, outside of the public markets of the said city, keep a room, stall, store or other place where any milk, meat, butter, fish, fruit, or vegetable intended for human food are sold or exposed to sale without first obtaining a permit to do so from the Chief Health Officer of the City of Richmond. Application for said permit shall be made in writing, upon a form to be prescribed by said health officer, in which application it shall be stipulated that the inspector or other health officer of the City of Richmond may, from time to time inspect such places and premises and the milk produced, or victauls, food and food supplies exposed to sale thereat, and also that such applicant will conform to the requirements of this chapter, and such reasonable rules and regulations as may be established by the Administrative Board for the government of such place or places. Every person to whom such permit is granted, before he shall be entitled to carry on business for which he desires such permit, shall pay to the Auditor of the City of Richmond a fee of two dollars to cover the expenses incident to the inspection of milk, victauls, food and food supplies in the mode prescribed by this ordinance. Before granting such permit it shall be the duty of the said health officer to make, or cause to be made, an examination of the place and premises which are intended to be used in conducting any such business, or in the maintenance of said dairy farm or stable, and of such place, stall or store where it is proposed to sell milk, meat, butter, fish, fruit, vegetables or other food supplies, and thereafter, from time to time, inspect the same, and if found in an unsanitary condition, such permit may be refused, or if granted, may at any time be revoked or suspended, without notice, by the Chief Health Officer, if, in his judgment, such dairy, dairy farm or place is found to be in an unsanitary condition.

2. This ordinance shall be in force from its passage.

(*Obverse.*)

RICHMOND HEALTH DEPARTMENT.

FOOD INSPECTION. Date..............................191

Address: No. .... Street..............................
Business .... Name..............................
Permit No. .... Screens.................... Flyproof....................
Garbage Can.................... Rubbish.................... Toilet....................
Cleanliness: Employees.................... Clothing....................
Cleanliness: Floors.................... Walls.................... Tables....................
Utensils.................... Wagons.................... Storage....................
Flies.................... Light.................... Ventilation....................
Food Exposed.................... 24-inch law observed....................
Food Condemned.................... Unlawful Milk....................
Rating.................... Orders or Remarks....................
....
.... Time limit....................
Grade: Excellent, Good, Fair, Poor,

....
Inspector.

(*Reverse.*)

SYNOPSIS OF ORDINANCES AND REGULATIONS OF THE CITY AND STATE FOR THE PROTECTION OF FOOD SUPPLIES.

PERMITS REQUIRED—Every person desiring to keep a place (outside of the City Markets) where any meat, butter, fish, fruits, vegetables, or other food supplies are to be sold, must obtain a permit from the Health Department, and pay to the City Auditor two dollars ($2.00) for the same.

The Food Inspector shall inspect such place and approve it before a permit is granted.

The permit to be revoked if the place is thereafter kept in an insanitary manner.

UNSOUND FOOD PROHIBITED—No meats, butter, fish, fowl, fruits, vegetables nor milk which are unsafe for human food shall be brought within the city, stored, held or offered for sale.

CLEAN STORES AND STALLS—Every person owning, leasing or occupying any room, stall or place where any meat, poultry, fish, fruit or vegetables desired for human food are kept, shall keep such place and its appurtenances clean.

Every person having charge of the above named food products shall keep them in a clean and wholesome condition, and shall not allow them to become infected or rendered unsafe for human food.

SCREENING—All rooms in which food supplies are handled, except those in which the food and drink are amply and securely protected, shall from April 1 to October 31 of each year be securely screened against flies.

All meat, dressed poultry and fish, all confectioneries, bread or other cooked food, berries, fruit, vegetables, or other articles used for food without cooking or peeling, shall not be exposed to dust or to flies.

This regulation applies to street wagons and vendors as well as to grocers and stall kepers.

Every article of food displayed for sale must be kept at least twenty-four inches above the floor or sidewalk.

MILK AND CREAM—Milk and cream handled in Richmond must be dispensed from tightly closed and capped bottles, or such containers as may be approved by the Chief Health Officer.

Pasteurized milk must be marked on the cap "PASTEURIZED" and with the day of pasteurization.

Pasteurized milk must be sold within twenty-four hours after date of pasteurization.

Grade A milk, marked as such, which may be sold raw, need not be dated.

LIGHTING AND VENTILATION—Every place used for the manufacture, sale or distribution of food products shall be properly lighted, plumbed and ventilated.

Every such place shall be conducted with due regard to the health of employees.

REMOVE REFUSE DAILY—All refuse and dirt incidental to the manufacture, preparation, selling or distribution of food, shall be removed from the premises daily.

UTENSILS AND RECEPTACLES CLEANSED DAILY—All tables, utensils, receptacles and machinery used in the moving, handling or preparing food for sale, must be thoroughly cleansed daily.

SICK EMPLOYEES BARRED—No employer shall knowingly permit a person suffering from an infectious disease to work in any place where food for the general public is prepared or distributed.

SPITTING—No one shall spit on the floor. Cuspidors must be provided in all places where food is dispensed.

TOILETS—Convenient toilets must be provided, entirely separate from the rooms where food is manufactured or stored.

MEATS TO BE COVERED—Wagons used to transport meats must be provided with tarpaulins big enough to cover the entire wagon when loaded.

PENALTIES—Violations of the City and State laws are punishable by fines of not less than five nor more than three hundred dollars and revocation of permit.

Form F. I.

RICHMOND HEALTH DEPARTMENT.

DAILY FOOD INSPECTION.

Inspector. *Date*

Business.	Visits.	Passed.	Notified.
Abattoirs			
Bakeries, pie makers, etc.			
Bottling plants			
Butchers			
Candy places			
Commission houses			
Dairies			
Fish, oysters, crabs			
Fruit dealers			
Grocers			
Green grocers			
Hotels, boarding houses			
Hucksters			
Ice cream plants			
Poultry dealers			
Preserving plants			
Restaurants			
Soft drink places			
Miscellaneous			
Revisits			
Total			

	Total.
Food permits issued	
Food permits suspended	
Cash for permits	
Cases in court	
Fines	

Condemnations.	Pounds.	Pack'ges
Canned goods		
Eggs		
Fish, oysters, crabs		
Fruits, fresh		
Fruits, dried		
Meats		
Milk		
Milk products		
Poultry, game		
Vegetables		
Miscellaneous		
Total		
Samples drawn		
Milk		
Other		
Total		

PLACARD TO BE POSTED CONSPICUOUSLY.

Rules for the Sanitary Regulation of Ice Cream Parlors, Manufactories and Soft Drink Establishments.

1. All ice cream parlors or manufactories, places where soda fountains are operated, and all places where soft drinks are sold or manufactured, shall be kept in a clean and sanitary condition at all times by those who operate and maintain the same.

2. No water shall be used in or about such places, unless the same shall be approved by the Chief Health Officer, as being pure and unpolluted, for filling fountains or bottles, mixing drinks, washing vessels and utensils, or for any other purposes that may contaminate food or drink.

3. All glasses, spoons, dishes, bottles, and other vessels used in serving refreshments or beverages, or in manufacturing or distributing same, shall be thoroughly cleansed after each such use; such cleansing shall be, first, by washing, then by sterilization, either by hot water, live steam or immersion in a disinfectant solution approved by the Chief Health Officer, and for such length of time and in such manner as he shall prescribe.

4. The use of tanks or vessels containing water for washing glasses and other utensils is forbidden at soda fountains and soft drink stands. Such washing must be done in fresh running water.

5. All vessels used for containing fruit juice, syrups and crushed fruits, and all syrup tanks, shall be thoroughly scoured and scalded before each filling, and such vessels when filled shall be kept tightly covered.

6. Cream, milk, ice cream, and other dairy products used or served in such places, shall be handled in the manner prescribed by the Richmond Health Department. No milk or cream shall be served or used except that obtained from a dairy holding a permit from the Richmond Health Department.

7. All surfaces on soda fountains, counters, draining boards, ice boxes, tables, and places where drinks and refreshments are made or served and may be contaminated, shall be kept scrupulously clean at all times.

8. Flies must be excluded from all such places at all times, either by effective screening or by the use of fans properly situated and propelled with sufficient force.

9. All refuse from soda fountains, soft drink stands, and ice cream parlors, shall be kept in water-tight, closely-covered metal receptacles, which shall be emptied daily and daily cleaned.

10. No person shall be employed in or about such places who is suffering from any "cold" (coryza), sore throat, cough, skin disease, or any other contagious disease.

11. All persons employed in such places shall keep their persons scrupulously clean, and while handling or serving refreshments shall be clothed in clean, washable material.

12. A copy of these regulations shall be posted conspicuously in every such place.

13. Any violation of these regulations shall be punished by a fine of not less than $2.00 nor more than $25.00 for each offense, recoverable before the Police Justice of the City of Richmond.

ROY K. FLANNAGAN,
Chief Health Officer.

CONDENSED ORDINANCES AND RULES GOVERNING THE SANITATION OF THE CITY MARKETS.

1. Every occupant of a stall shall be neat in person and cleanly. To this end, he shall wear a clean, white coat while waiting on customers. He shall keep all parts of his stall, including the windows and floor thereof, clean. He shall whitewash and paint the stall whenever so required.

2. All dealers in meat, butter, cheese, preserves, pickles, and such like foods, must at all times keep same carefully protected from dust, flies, and contamination by passers-by. Every article of food displayed for sale must be kept twenty-four inches above the walkway.

3. Every box or refrigerator for the storage of meats or other perishable food products shall be raised on legs at least six inches from the floor of the market house. Such box or refrigerator must conform to specification furnished by the City Health Department and shall be cleaned thoroughly at least once weekly.

4. No one shall offer for sale any unsound meat, fish, fowl, eggs, or any other article. The clerks of the market shall notify the Chief Health Officer of any violation of this rule. In event of the failure on his part to act promptly, the clerk shall destroy the offensive matter and report his action to the Health Department at once.

5. All dealers in live poultry must occupy stalls apart from those at which fresh meat, butter, cheese, pickles, preserves, and the like, are sold.

6. No person shall keep any live animal, except fowls, within the precincts of the market for a longer time than one hour, nor shall any person pick or clean fowls, fish, or game, or leave any offensive material, dirt, or rubbish, within or adjacent to the markets.

7. No one shall place on the walkway outside of the stall any stall fixtures, stand, box, or anything else of an obstructive nature; nor shall meat be hung outside of the stalls.

8. All persons occupying places within the precincts of the markets for the purpose of selling vegetables or other country produce shall deposit all refuse and debris created by them in receptacles provided by the city, under the penalty of $2.00 fine for each offense.

9. No employer shall knowingly permit a person suffering from an infectious disease to work where food products are sold or distributed. Spitting on the floors or walkways is strictly prohibited.

10. No one shall waste any gas or water nor injure in any way the fixtures supplying same. The hydrants supplying hot water to the markets shall be kept clear of all obstructions at all times.

11. Wagons used to transport meat or fish must be provided with adequate covering to prevent contamination by dirt or flies.

12. The clerks of the markets are invested with the powers of police officers while on duty and shall see that the markets are kept neat and that the streets and alleys used for market purposes are swept and cleaned daily. They shall see to the full and faithful compliance with inspections and the sanitary and health rules of the city and State.

HEALTH DEPARTMENT OF THE CITY OF RICHMOND.

Bottling Plant Score Card.

______________, Date of Inspection, ______________ 191

QUIPMENT		SCORE Perfect	SCORE Allowed
LOCATION		15	......
Surroundings: Clean	3		
Above ground	2		
No open privy nearer than 100 eet			
No hoises kept on premsies	2		
Proper toilets located outside building, 3; inside,	3		
CONSTRUCTION		20	......
Floor: Cement, 5; tile or brick, 3; wood, 1	5		
Floor free from defects	3		
Walls and Ceiling: Tile, cement enameled metal and enameled wood	5		
Plaster, 2; rough wood, 0			
Walls free from defects	2		
Fly Screens	5		
SANITATION		15	......
Light: Window area 20% of floor space	4		
Ventilation: Working system	5		
Windows	4		
Drainage: Ample, 1; trapped, 1	2		
BOTTLE FILLER		10	......
Automatic, 10: hand, 3	10		
BOTTLE WASHER		10	......
Machine, 10 hand, 5	10		
OTHER UTENSILS		5	......
Smooth	3		
Free from rust	2		
WATER SUPPLY		10	......
Water: From deep well, 10; city main, 7	10		
Allow 10 if water has been examined and passed by Health Department.			
DRESSING ROOM		15	......
Hot and cold water	3		
Sanitary lavatory, soap and towels	3		
Bath tub or shower bath	6		
Uniform working suits and caps	3		
Total		100	......

METHODS		SCORE Perfect	SCORE Allowed
BUILDINGS		25	......
Cleanliness:—			
Ceilings—Painted, 1; clean, 2	3		
Walls—Painted, 1; clean, 2	3		
Floors	4		
Windows and ledges	4		
Free from flies	7		
Free from odor	4		
APPARATUS		25	......
Cleanliness:—			
Bottle filler and capper	8		
Bottle washer	7		
Rinsing tubs	3		
Vats	4		
Pipes	3		
CONTAINERS		15	......
Bottles:—			
Well soaked, washed and rinsed	10		
Barrels washed, live steam	4		
Crates washed	1		
HANDLING OF PRODUCT		10	......
Production from dust and flies:			
Covered vats	3		
Storeroom properly protected	3		
Bottle caps protected	4		
EMPLOYES HANDLING PRODUCT)		25	......
Medical examination	15		
Clothing clean	3		
Hands clean	4		
Hands free from sores	3		
Deduct 10 points from score allowed for smoking or expectorating in parts of building where product is being mixed or handled.			
Total		100	......

Score of Equipment..........Multipled by 1 — ....

Score of Methods. ....Multiplied by 2 — ....

Total..................Divided by 3 — ....FINAL SCORE.

Signed..

Inspector

(*Reverse.*)

HEALTH DEPARTMENT OF THE CITY OF RICHMOND.

SANITARY INSPECTION OF BOTTLING PLANTS.

Bottling Plant Score Card.

Name ....

Address ....

Name of product..

Remarks ....

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Date of inspection..19........

Signed..

Inspector.

REPORT OF DAIRY INSPECTOR.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to present to you my report as Dairy Inspector for the year ending December 31, 1917.

Number of visits to dairy farms	1,673
Number of dairies visited and scored	168
Number of scores made	1,402

CLASS	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
60 to 70	5	2	0	2	0	1	1	1	0	2	1	1
70 to 80	97	90	99	88	103	67	96	97	89	90	95	86
80 to 90	21	15	16	26	20	28	19	27	19	15	22	19
90 to 100	2	5	4	5	5	4	5	4	1	4	3	2
Total number of scores made during month	125	112	119	121	128	100	121	129	109	111	121	108
Number of dairies scored which continued to sell milk and cream during month	122	112	119	121	128	99	120	129	109	110	121	107
Average score	76.9	76.7	76.6	77.4	77	78.4	77.1	77.5	76.9	76.2	76.7	76.4

Permits refused	14
Permits suspended	2
Permits suspended and restored	0
Permits revoked	6
Permits revoked and restored	4
Average score of six places whose permits were revoked	64.8
Average score of four places whose permits were revoked and restored	77.2
Diseased cows found and use of milk from same ordered discontinued (4 with cowpox, 3 giving stringy milk, 7 inflamed bags, 4 with garget)	18
Gallons of cream condemned	10
Gallons of milk condemned	215
Gallons of milk excluded from city	300
Samples of milk taken for bacteriological examination	2,139
New barns built during year	11
New milk houses built during year	11
Sets of blue prints for barn construction furnished during year	35
New barns under construction	3
New milk houses under construction	2
Number of new shippers to the Richmond market during the past year	12
Number of shippers who have discontinued shipping to Richmond during the past year	25

The problem of the milk supply of our country is a vastly important one, milk being so necessary and important a food for all people that its price is always a bone of contention between producer, milk dealer and consumer.

There is no doubt that the past year has brought its problems in all lines of the dairy industry, and in some cases a remedy was very difficult to find.

It was generally granted that the farmer must have an increase in the price of his milk because of the high cost of feeds and labor. The distributor, also, had increased costs to meet. The consumer, therefore, must be willing to pay a price sufficient to enable the farmer to produce milk at a profit and give the milk distributor a fair profit for handling the product.

The advance in the retail price of milk always causes a decrease in consumption, not only from those who cannot afford to pay the increased price, but also from numbers of well-to-do persons cutting down their consumption—not to save the few cents per quart, but because they made up their minds to retrench in this matter. Custom lost in this way does not quickly come back, even though the price be reduced. I fully recognized this fact, therefore when I appeared before the Richmond Producers' Association, on October 29, 1917, I frankly told them I did not approve of their action in demanding 35 cents per gallon from the distributor, which would make the retail price 15 cents per quart—a price I thought too high. After some discussion, the producers agreed to allow me to fix the price the distributor was to pay them and to stand by my decision. After informing the two distributors of the result of my meeting with the producers, they, too, agreed to sell to the consumer at a price to be fixed by me. The prices set, 34 cents per gallon to be paid to the producer by the distributor and 14 cents per quart to be paid by the consumer, have so far proven entirely satisfactory.

Dairy products must be used in every home if we are to have a nation of strong, well-nourished people. This means that the price of milk must be within the reach of all. If milk could only be purchased by people with large incomes, there would not be a very big dairy industry in this country.

The public has a right to demand that dairymen practice scientific methods of farming and dairying, thereby reducing the cost of production, for no possible increase in the price of milk can make a poor cow pay a profit.

The dairyman, also, has a right to demand certain things from the consumer. The public is inclined to regard milk as a white fluid with a cream line, not being interested whether it is produced under clean or dirty conditions. About the only time that they become interested is when the price is increased.

We are spending a great deal of time in the education of the farmer. No doubt some of it could be spent to advantage in the education of the consumer.

It seems impossible to find out, with any degree of accuracy, what it costs to produce a gallon of milk. Numerous experts, and others who have tackled the problem, showed a very wide variation in their estimates.

In all well-managed manufacturing plants, it is possible to know, accurately, what it costs to produce every article manufactured; therefore, since dairying is a business operated for profit, it is natural that a person operating a dairy should want to know what it costs to produce a gallon of milk on his farm. There is bound to be a variation in the cost of milk-production on different farms, for so much depends upon conditions on the farm as well as the individual operating the dairy.

On a number of farms visited by me, some dairymen, in spite of the fact that no records were kept of what their cows were producing, claimed they could tell exactly what it cost to produce a gallon of milk, but I could not figure out how this could be done without knowing the producing capacity of the cows. I do not think that any one will dispute the fact that the two determining factors in the cost of producing milk are (first) the cost of keeping cow and (second) her production of milk. The importance of the latter factor can be well illustrated from the records of herds in a cowtesting association. Where herds produced an average of 4,600 pounds of milk per year, the cost per 100 pounds of milk was $3.50. Where the herd production was 5,600 pounds per year, the cost was $2.89 per 100 pounds. Where they produced 6,600 pounds, the cost was $2.45 per 100 pounds. Where a few herds were found producing around 9,500 pounds of milk annually, the cost was less than $2.00 per 100 pounds of milk.

There is no problem at present giving the dairy farmer as much worry as his inability to obtain competent dairy and farm help. In fact, this has been the reason a number of dairymen supplying milk to the City of Richmond were compelled to dispose of their herds. The labor question is becoming a serious one for agricultural as well as dairying. This condition also applies to indoor help on the farm. In many cases farmers are forced to limit their efforts to such scope as they can handle unaided by outside help. On many farms we find one hired man where they should have three. This, especially, is a serious handicap of the dairy, which is exacting beyond some other lines of agriculture in its demands.

The milking machine naturally suggests itself at this time as a possible help in solving the labor problem on the dairy farm. Good, clean handmilkers are very scarce at the present time, and as numbers of young men are being called to the service, it is more difficult than ever to obtain farm labor, especially dairy hands. Every war brings problems like those that dairymen now face. During the Civil War the great agricultural problem was that of harvesting grain crops. To feed a hungry army was the great duty of those remaining at home, who were too few in number to save the grain crops; so sheer force of necessity compelled the persistent trial and successful use of the self-binder; and so it will be with the milking machine.

One great trouble seems to be that the dairymen will not give the milking machine a fair trial and learn to operate it efficiently, which, of course, takes time. They are therefore naturally disappointed for the first few weeks of its operation, and in many cases will do away with its use before becoming thoroughly acquainted with its mechanism. Few machines are foolproof, and the man factor is very important in using them successfully.

Keeping the machine bacteriologically clean is just as important as operating it properly. The pails can be kept clean the same way that any milk pail is kept clean. Rubber parts, however, cannot be kept clean in this way, and they should be kept in a disinfectant solution. Ordinary chloride of lime, purchasable at any drug store, is as good as anything that can be found. Use a 12-ounce can of chloride of lime, being sure that can is not broken or rusted, or its contents moist. It should be a dry powder if it is fresh and of good strength. Prepare a stock solution by adding the contents of one can to a gallon of water, in a pitcher or tall glass jar. Fill a second receptacle, holding about 20 gallons, with water and add one pint from your first solution to the second one. Double the quantity will do no harm, as the solution in the second receptacle loses strength quickly, and it is therefore necessary to add new chloride at least once a week. It is also advisable to add enough salt to the second solution to keep it from freezing in cold weather, and the brine is also a good solution in which to keep the rubber parts. Immediately after each milking, rubber parts should be rinsed in clean, cold water, then hot water containing solution of soda, then clean hot water before being placed in the chloride solution.

During the year the tuberculin test was applied to 50 herds, containing 1,706 cows. Of this number, 36, or two per cent., reacted. This remarkable showing is due to the fact that most of these herds had been previously tested. The tests, in detail, follow:

Number of Herds	Number of Cows Tested	Number of Reactors	Number of Suspects	Number Passing Test
1	76	1	0	75
2	84	1	1	82
3	9	0	0	9
4	44	0	0	44
5	41	2	0	39
6	80	1	0	79
7	23	0	0	23
8	8	0	0	8
9	39	0	0	39
10	24	0	0	24
11	48	0	1	47
12	15	0	0	15
13	31	1	0	30
14	23	0	0	23
15	17	0	0	17
16	59	1	0	58
17	32	0	0	32
18	26	0	0	26
19	29	7	1	21
20	36	11	0	25
21	14	2	2	10
22	21	0	0	21
23	14	1	0	13
24	11	0	0	11
25	41	1	0	40
26	33	0	1	32
27	29	0	0	29
28	40	0	0	40
29	22	0	0	22
30	37	0	0	37
31	18	0	0	18
32	32	0	0	32
33	48	0	0	48
34	68	0	0	68
35	43	0	0	43
36	31	0	0	31
37	30	0	0	30
38	17	0	0	17
39	25	0	0	25
40	7	0	0	7
41	4	0	0	4
42	31	0	0	31
43	12	0	0	12
44	86	0	0	86
45	86	0	0	86
46	53	4	0	49
47	22	0	0	22
48	34	0	0	34
49	27	3	0	24
50	26	0	0	26
Total............	1,706	36	6	1,664

Of all the problems confronting dairymen, none is more serious than that of abortion, which is due either to accident or to a germ. The amount of loss due to the former cause is slight, while abortion due to the germ, that is, infectious abortion, has resulted in one of the most serious losses of dairymen. In spite of the severe losses in all parts of the country where cows are kept, as yet no effective treatment has been found, and the control of this disease is greatly hampered by lack of knowledge as to just how the disease is most often spread. In the Federal Agricultural Bill passed this year, fifty thousand dollars was provided for research work in contagious abortion. There is no known cure for abortion, but certain preventive measures have been found effective in its control. Many who wish to sell a remedy for its cure have taken advantage of the fact that a cow will develop immunity in from one to three years, thus curing herself, while the remedy sold often gets credit for the cure. The best recommendation for the control of the disease seems to be as follows:

1. Isolate all aborting cows and burn or bury the fetus and membranes. This prevents spreading the infective material throughout the herd.
2. Disinfect navel of new-born calf and bring calf up on the milk from cows known to be uninfected.
3. Thoroughly disinfect the stable where cow aborted and burn bedding.
4. Thoroughly wash the hind quarters of an aborting cow and irrigate the vaginal tract with a good antiseptic, daily, until all signs of discharge have passed.
5. Disinfect the bull before and after service.
6. Raise your own calves to replenish your herd and stop bringing in new infection.
7. Keep clean animals and clean stalls.

The disease tends to die out if these measures are consistently carried out.

When dairymen consider the fact that the calves they are at present raising will be the cows of their herds in a few days, every effort should be made to give these calves proper care and feed.

The three essentials for successful calf raising are cleanliness, care and regularity. If well cared for, a calf will gain weight every day. In fact, weight is one of the best guides of proper care. No gain in weight indicates that something is wrong. As the price of feeds today is higher than ever before, we cannot afford to raise heifers until they freshen unless they are by a good sire—one that has both production and pedigree back of him out of a good cow—one that we know has produced enough milk or fat to pay a profit. Of course, there is no guarantee that after we have taken all this precaution all the heifers we raise will turn out to be good cows, but we can rest assured that they will be better and more profitable than like numbers carefully selected and bought.

A dry, clean, well-ventilated box stall should be provided for the calf at birth. An abundance of dry bedding helps to keep the calf dry and warm. The approximate weight of calves at birth should be known, as this serves as a guide in the amount of milk to be fed. Most calves at the present time are raised by hand; that is, they are allowed to nurse only a few times and are then fed from pails. The common plan is to allow them to remain with the dam a day or two, in order to receive the colostrum, or first milk, which has a purgative effect, and also aids in cleaning out the calves' digestive system. If the calves are weaned early, they are more easily taught to drink and the sooner the cows forget them. It is necessary for the calf to become hungry by the omission of one or more feeds before it will drink milk from a pail. One method of teaching the calf to drink is to get it to suck the attendant's fingers as its mouth comes in contact with the milk in the pail. The fingers can be withdrawn gradually, and the calf will usually continue to take the milk. Patience rather than force accomplishes the best results.

Great care should be taken to see that the pails from which the calves are fed are scrupulously clean, the pens clean and plenty of bedding supplied.

Young calves require fresh, clean and warm milk, fed regularly. The digestive capacity of the young calf is not suited to receive large quantities at a time. A calf will do better if fed three times a day than if fed the same amount of milk in two feedings. The temperature of the milk should be around ninety degrees. A very good guide to follow in feeding calves is to give them about one pound of milk daily to each eight pounds of live weight. If at any time after two weeks the calves are strong and vigorous, skim milk may be substituted for whole milk. The change from whole to skim milk should be made gradually, by adding increasing quantities of skim milk each day and decreasing the amount of whole milk used until the feeding consists wholly of skim milk. The amount of skim milk to be fed may be increased as the calf grows, it being rarely necessary to feed more than fifteen pounds daily, in addition to the feeding of some grain and good quality of legume hay. The grain should consist of a little bran or ground oats, and the hay placed conveniently for them.

When skim milk is scarce, calves can generally be put on dry feed at about three months of age. A very good grain mixture for calves consists of 10 pounds of ground corn, 50 pounds of wheat bran and 30 pounds of cottonseed meal. Corn silage can be fed to a calf after it is three months of age, providing it is of good quality. Do not neglect the water supply for calves after they are one month old. In winter the water should be warm. Salt should also be furnished the calf after it is three months of age. Many of us have seen heifers that have been given the best of attention until they were five months of age, then turned out on a poor, dried-up pasture to fight flies and try to make a living.

If no skim milk is available, a calf meal may be used with a little whole milk. There are several ready-mixed calf meals on the market. Most of them are good and will give satisfactory results if properly fed.

Some dairymen have had very good results from feeding oil meal gruel, feeding the calf whole milk until it was about five weeks of age, than a tablespoonful of linseed meal (old process), well cooked, added to one pint of water being substituted for a pint of milk. Every third day following an additional pint of gruel is substituted for a pint of milk until half the ration consists of gruel. This half and half mixture is continued until the calf is from three to four months old, when it can live on dry feed.

Remember that young animals cannot stand as much hardship as matured animals, and if a cow is to have capacity for large production, every opportunity must be given her to develop before she begins to produce.

There would be fewer cases of scours in calves if a little precaution were taken in a few simple things; such as seeing that the milk being fed was always about the same temperature (90 to 100 degrees), the milk pails used in feeding the calves washed and scalded after each feeding, calf stalls kept dry and clean, and the stall in which a calf having scours is kept disinfected. Remember that feeding from dirty pails and feeding rations the young calves cannot digest are the two main causes of this disease. A few tablespoonfuls of castor oil or an equal amount of salts have been found very beneficial in curing mild cases of scours.

Dairymen should try and reduce the number of flies on their farms, especially during the summer. It has been scientifically demonstrated that the fly plays an important role in the transmission of intestinal diseases; such as typhoid fever and infantile diarrhea. There is no doubt that, besides the danger from the transmission of disease by the fly, the continual fighting on the part of the cow of this insect calls for a certain amount of energy, which is sure to cut down the milk yield. The fly is a pest around the dairy. They worry the small calves at feeding time and at most all other times. In the pasture they worry the young stock and the milking herd. In the stable they irritate the cows at milking time, thus cutting down the milkflow. It is also a job to keep them out of the milk after milking.

The great factor in reducing the number of flies is to do away, as far as possible, with their breeding places, which resolves itself into a campaign for cleanliness, as the chief breeding places of flies are in excrement and other filth.

As there seems to be a great scarcity of tin plate at the present time, every attention should be given by the dairyman to the conservation of his milk cans. After being washed, cans should be drained until dry. This prevents rust. Leaky cans should be repaired instead of being thrown away. It is also possible to have old cans re-tinned and straightened.

Every spring the same trouble is encountered with garlic flavor in milk and cream. While this flavor is in no way injurious to health, it is very objectionable to most people, and milk dealers are forced to refuse such milk or cream. Many pastures are so badly infested with wild onions that the milk is tainted if the cows are allowed to graze on them for a short time. Some dairymen claim that if cows are kept out of badly infested pastures for three or four hours before milking there will be no trouble with onion flavored milk. This plan may work where a pasture is not badly infested, but it is a very risky thing to do if the cows have had an opportunity to eat large quantities of wild onions.

The United States Department of Agriculture recommends a system of deep ploughing and cultivation for the eradication of this pest from fields. Full information can be obtained by writing to the Department of Agriculture for Farmers' Bulletins Nos. 608 and 610.

Sore teats give the dairyman a great deal of trouble, especially in the winter time. This trouble is caused by rough milking of thin-skinned cows, from cracks in cold weather, or from a contagious disease known as cowpox, which is easily detected, as the teats break out in pimples and form scabs. When a cow is found suffering from this disease, she should be isolated and every precaution taken to prevent the spread of this disease, which is very contagious and may be carried, from one cow to another, on the hands or clothes. Carbolized vaseline has been found to be of great benefit in the treatment of this disease.

One barn was destroyed by fire and one by wind during the year.

The policy of the Milk Inspection Division is practically the same as in the past, depending mainly upon its educational work for results and doing everything which seems to be practical under present conditions, with the cooperation of the producer and the milk dealer in the city, to give citizens of Richmond a good, clean, wholesome milk supply.

Respectfully submitted,

T. J. STRAUCH,
Dairy Inspector.

REPORT OF CITY CHEMIST.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

From January 1, 1917, to May 16, 1917, I examined for the Health Department 842 samples of milk.

Respectfully submitted,
J. M. WHITFIELD,
City Chemist.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

From May 1, 1917, to January 1, 1918, inclusive, I examined for the Health Department the following samples:

	1,630 samples of milk.
August	3 samples of fish roe.
October	2 samples of butter.
November	1 sample of oysters.
November	1 sample of sugar.
November	1 sample of pickles.
December	2 samples of water, from Cartersville.

Respectfully submitted,
HENRY FROEHLING,
City Chemist.

REPORT OF PLUMBING INSPECTOR.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I herewith submit to you my annual report as Plumbing Inspector for the year ending December 31, 1917.

During the past year, plumbing inspections made up to the month of September compare favorably with those of former years, but since that time, owing to war conditions and the high cost of building material and labor, construction work has fallen off considerably.

During the year, 470 new buildings, requiring 990 inspections and tests, were completed, and 1,854 inspections were made of additions and alterations of plumbing in old buildings. This shows an increase of 490 inspections over the number of inspections made during the year 1916.

In the early spring and summer months, we were kept very busy meeting the demands for inspections, having to work early and late to prevent delays in the construction of buildings, and if it had not been for the assistance rendered by the two plumbers of the sanitary force, it would have been impossible to meet the demands upon our time.

While during the past year there were not as many building operations as in the year previous, at the same time the amount of inspections made of additions and alterations in plumbing exceeded that of the year 1916. There is nothing that aids the sanitary condition of our city more than improvements made in this class of work. New plumbing fixtures, drains and alterations made in a large number of houses where the plumbing was so old and insanitary that it endangered the lives of the occupants justifies very clearly the connection of the Pluming Inspector to the Health Department. It also speaks well for the owners and agents of old property that they should make such extensive improvements when it was not compulsory in many cases.

In looking forward to the year 1918 and taking into consideration the growth of our city, the prospects are that, since new buildings will probably be reduced, there will be a large amount of special work done in remodeling old buildings and converting them into separate apartments with the necessary modern sanitary arrangements for the proper housing of our increasing population. I have no doubt but that our time during the coming year will be largely taken up with this class of work.

I desire to call your attention to the fact that during cold weather there are, by reason of frozen pipes, numerous complaints made to the Health Department of lack of water supply, which causes nuisances to exist in water closets and other plumbing fixtures. The fault lies in the improper construction of these pipes and by those in authority not enforcing the city ordinance regulating the installation and inspection of water supply pipes. I trust, therefore, that you will give this matter your earnest consideration, as I deem it of the utmost importance as a health measure that the ordinance governing the inspection of supply pipes should be *rigidly enforced*, so as to prevent, as far as possible, the freezing of these pipes and the insanitation resulting therefrom.

While the enforcement of this ordinance will in a measure prevent the freezing of a great many water supply pipes, provided the stop and waste-cocks are looked after at the proper time, there are many other conditions to be considered in the protection of the plumbing work of a building. There are the plumbing fixtures, such as the water closets, traps and waste connections, which are of much more importance and more costly to replace. These cannot be protected from freezing except by means of some kind of heat in the toilet rooms. The destruction this winter of water closet bowls, traps and other expensive fixtures in bath rooms from freezing, caused by lack of heat in these rooms, exceeds that of many years, and it seems clear to me that no toilet room should be built unless provision for heating same be provided.

I desire to state that in my judgment the drainage system in some sections of our annexed territory is entirely insufficient to meet the demands of a growing population, and such improvement should be made to give better results. In many localities the rain conductors cannot be connected to the drainage system on account of overcharging the sewers and causing back water to flood basements and cellars, causing nuisances of a very serious nature. This should not be, and I trust that in the near future this difficulty will be remedied by the installation of a sufficient drainage system in these outlying sections.

I recently made an inspection of the plumbing in six of our public schools. These schools were built many years ago and are not of the modern type. In some instances I found the plumbing fixtures in these schools very insanitary, as reported to you at the time. I adhere to my recommendation that the old fixtures should be taken out of these schools and new sanitary fixtures of a modern type installed. I trust, therefore, that the School Board will be granted a sufficient appropriation to enable them to make the necessary improvements, as I think it is of the greatest importance, for the health of the children, that our public schools should be provided with the very best sanitary arrangements.

In conclusion, I desire to say that I commend very highly my Assistant Plumbing Inspector, Mr. Thomas W. Mitchell, for his very efficient and prompt service in the discharge of his duties in making inspections. I also appreciate the services rendered me at times by the Sanitary Officers when emergency required it.

My tabular report follows:

MONTH	Inspections Made	Plumbers Permits Issued	Inspections Made in Old Buildings—New Connections	Inspections of Alterations and Additions in Old Buildings	Complaints Investigated	Inspections Made in New Buildings.	New Buildings Completed	New Sewer Connections to Old Buildings Completed	Additions and Alterations in Old Buildings Completed	Notices Served on Owners and Agents	Police Court Casee Tried
January	243	152	39	110	15	79	47	29	63	15	0
February	236	109	9	125	17	85	14	7	120	17	1
March	422	189	57	199	18	148	64	35	149	18	2
April	425	164	81	150	12	182	78	63	150	12	1
May	399	176	59	191	18	131	76	26	184	14	2
June	339	154	19	164	20	136	48	21	164	20	2
July	273	125	13	140	40	80	53	9	140	30	2
August	269	145	8	161	45	55	29	6	150	27	3
September	217	145	6	150	30	31	29	1	145	24	1
October	272	136	10	200	35	27	19	8	232	35	0
November	220	124	12	159	23	26	9	5	150	23	0
December	144	61	5	105	24	10	4	5	103	7	0
Total	3,459	1,680	318	1,854	297	990	470	215	1,750	242	14

Fines imposed, $75.00.

Respectfully submitted,

THOS. M. LANDERS,
Inspector of Plumbing.

REPORT OF THE PLUMBERS' EXAMINING BOARD.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my report as Secretary of the Plumbers' Examining Board for the year ending December 31, 1917:

Meetings held during the year	13
Journeymen plumbers examined	34
Number examined and found unqualified	7
Number examined and licensed	24
Number of licenses renewed	114

Respectfully submitted,

THOS. M. LANDERS,

Secretary of the Plumbers' Examining Board.

FUMIGATOR'S REPORT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Fumigator for the first five months of the year ending December 31, 1917.

MONTHS	SCARLET FEVER		DIPHTHERIA		TUBERCULOSIS		OTHER CAUSES		TOTAL	
	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms	Houses	Rooms
January	21	62	27	82	54	234	6	18	108	396
February	10	30	14	38	50	254	10	32	84	354
March	13	32	11	30	58	288	15	42	97	392
April	7	24	12	32	56	292	8	16	83	364
May	2	4	8	20	59	376	3	10	72	410
Total	53	152	72	202	277	1,444	42	118	444	1,916

Respectfully submitted,

JAS. F. WALLER,
Fumigator.

REPORT OF WHITE TUBERCULOSIS DISPENSARY.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my annual report of the work done at the White Tuberculosis Dispensary and by the nurses of the Richmond Health Department for the year ending December 31, 1917.

There were 332 visits to the Dispensary by patients, and 541 visits were made by nurses to Dispensary patients in their homes. Of the patients attending in 1916, 17 returned in 1917, and 76 new patients presented themselves for treatment, making a total of 93 patients for the year. The greatest number attending in any one month was 63, in July, and the smallest number was 24, in January.

The patients who attended are classified as follows:

Sex: 38 males; 55 females.

Age: 23 under 20 years; 51, 20 to 40 years; and 19 over 40 years of age.

Diagnosis: 35 tubercular; 6 non-tubercular; 52 undetermined.

Referred: 4 to other dispensaries; 11 to City Hospital or sanatoria.

Of the 35 tubercular patients, 21 attended fewer than four times, and hence are not classified below as to condition after treatment. Many of these came only once, as did also many of those whose diagnosis was undetermined.

The condition after treatment of the 14 tubercular patients who attended four or more times was as follows: Improved, 5; unimproved, 8; progressive, 1; died, 0.

There were 3 deaths among the Dispensary patients during the year.

It is exceedingly gratifying to note an increase over last year of 300 per cent. in the number of new patients presenting themselves for treatment. Corresponding increases in other respects are quite as encouraging; for instance, the number of visits by patients to the Dispensary increased 200 per cent., and the number of recorded visits by the nurses to patients in their homes increased 500 per cent.

The attendance at the White Dispensary has been greatly increased by the efforts of the volunteer and other social workers. Any one interested in the improvement of health conditions can, by devoting a few hours a week to this sort of service, discover many cases of tuberculosis which have heretofore been unknown, therefore have been unattended by any physician and unreached by any influence or organization having for its purpose the betterment of the conditions of the needy sick.

The war has taken away one-half of the physicians conducting the work of the Tuberculosis Dispensary. We find it practically impossible to fill their places. We very much need three doctors to assist in the work.

We have found the social worker connected with the general Dispensary of great assistance to our patients needing special attention in their homes, or requiring hospital or sanatorium treatment. Our greatest need just now is more nurses, to devote more time to finding and getting to the Dispensary the enormous number of unattended tuberculous cases in our midst and to devote more time to follow-up work, in order to observe and to correct the careless and pernicious habits, in the home, of the average tuberculous case, due largely to thoughtlessness and ignorance. If we ever reach the goal of our ambition, to reduce to the minimum the number of tuberculosis cases in the community, it must be accomplished more largely through *preventive* than by *curative* measures.

The efficient services of the nurses are hereby acknowledged. Their courteous attention to the patients, both at the Dispensary and in the homes, is commended.

The Chief Health Officer is much interested in the work of the Tuberculosis Dispensary, and we enjoy his sincere co-operation and hearty support in our efforts to make the Dispensary measure up to its responsibilities and opportunities.

The appended table of summaries gives a detailed account of the Dispensary work, month by month.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,

Chief of Clinic.

ANNUAL REPORT OF WHITE TUBERCULOSIS DISPENSARY FOR THE YEAR ENDING DECEMBER 31, 1917.

MONTH	SEX		AGE			STAGE OF TREATMENT			DIAGNOSIS			SPUTUM REPORT			WEIGHT			No. OF VISITS		CONDITION					NO LONGER UNDER TREATMENT					
																												Referred		
1917	Male	Female	Under 20 years	20–40 years	Over 40 years	New patient	Old Patient	Discharged	Tubercular	Non-tubercular	Undetermined	Positive	Negative	Not examined	Increased	Stationary	Diminished	To dispensary	By nurse	Disease arrested	Improved	Unimproved	Progressive	Died	No case	Left city	Lost sight of	To other dispensar's	To private physician	To sanitorium
January	5	6	0	7	4	3	8	0	10	0	1	4	3	4	1	5	2	23	24	0	2	8	1	0	0	0	0	0	0	0
February	4	6	1	6	3	2	8	0	7	0	3	3	3	4	1	3	4	15	34	0	1	8	1	1	0	0	0	0	0	2
March	4	6	2	6	2	3	7	0	7	1	2	4	2	4	4	4	1	15	50	0	2	8	0	0	1	0	0	1	0	0
April	5	4	0	6	3	2	7	0	7	0	2	3	5	1	3	4	2	19	42	0	2	8	0	0	0	0	0	0	0	0
May	2	13	1	9	5	6	9	0	11	2	2	4	6	5	2	0	7	22	50	0	2	12	1	1	0	0	0	0	0	1
June	7	11	1	13	4	6	12	0	12	0	6	6	9	3	2	7	5	26	40	0	4	13	1	1	0	0	0	0	0	0
July	12	18	6	16	8	21	9	0	10	2	18	3	18	9	6	4	6	51	63	0	7	23	0	0	2	0	0	1	0	1
August	8	15	5	13	5	6	17	0	9	0	14	3	13	7	10	8	3	46	62	0	10	13	0	0	0	0	0	1	1	0
September	5	8	3	8	2	0	13	0	7	0	6	4	8	1	9	3	1	22	48	0	5	6	0	0	0	0	0	0	0	1
October	14	11	5	15	5	8	17	1	10	1	14	6	9	10	10	4	3	33	54	0	10	15	0	0	1	0	0	0	0	2
November	8	10	4	12	2	8	10	0	9	0	9	5	9	4	11	4	0	28	33	0	10	8	0	0	0	1	0	0	0	1
December	15	10	7	13	5	11	14	0	10	1	14	5	10	10	6	5	6	32	41	0	9	15	1	0	0	0	0	1	0	3
Total						76				7								332	541					3	4	1	0	4	1	11

REPORT OF COLORED TUBERCULOSIS DISPENSARY.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my annual report of the work done at the Colored Tuberculosis Dispensary and by the nurses of the Richmond Health Department for the year ending December 31, 1917.

There were 445 visits to the Dispensary by patients, and 693 visits were made by the regular nurses to Dispensary patients in their homes. In addition to these, 190 visits were made by a special nurse, she going to the homes of ex-patients, in order that they might be induced to return to the Dispensary for treatment; making altogether 883 visits made by our nurses to patients in their homes. Of the patients attending in 1916, 38 returned in 1917, and 57 new patients presented themselves for treatment, making a total of 95 patients for the year. The greatest number attending in any one month was 25, in April and in November, and the smallest number was 15, in August. The average monthly attendance was 21.66.

The patients who attended are classified as follows:

Sex: 44 males; 51 females.

Age: 21 under 20 years; 54, 20 to 40 years; and 20 over 40 years of age.

Diagnosis: 44 tubercular; 5 non-tubercular; 46 undetermined.

Referred: 7 to other dispensaries; 2 to City Hospital or sanatoria.

Of the 44 tubercular patients, 29 attended fewer than four times, and hence are not classified below as to condition after treatment. Many of these came only once, as did also many of those whose diagnosis was undetermined.

The condition after treatment of the 15 tubercular patients who attended four or more times was as follows: Improved, 2; unimproved, 10; progressive, 2; died, 1. In addition to the one reported, there were five other deaths among Dispensary patients.

It is gratifying to note an increase this year of 300 per cent. in the number of visits made by the nurses to patients in their homes. The value of this sort of work cannot be overestimated. By reason of the large increase in the number of visits made to the homes of the patients, the nurses have had much larger opportunities for giving instruction and advice to our tuberculous patients. The attention of the average tuberculous, dispensary patient needs to be directed many times, and systematically, to the necessity of observing, in the home and upon the streets, the regulations regarding sputum, fresh air, exercise, food, regular habits and prevention of contaminating other members of the family. Many of our patients, we believe, have caught the spirit of carefulness and are exercising, in a commendable way, the principle of "safety first" for their friends and associates, as well as for themselves. Unless educated up to it, tuberculous patients will never observe the rules indispensable in preventing the contamination of the uninfected individuals. We believe that the strongest reason for the existence of the Tuberculosis Dispensary is found in the opportunities offered through its educational features of disseminating wholesome propaganda, the ultimate results of which, it is earnestly hoped, will be a blessing to humanity in a material reduction of the havoc wrought by the "Great White Plague."

The Richmond Anti-Tuberculosis Association is squarely behind every movement for the betterment of the tuberculosis stituation in our city. In addition to giving what financial aid it can, it is also enlisting the services of many of its members in an effort to discover some of the enormous number of untreated cases of tuberculosis in the city—and many of these are far advanced, constituting unknown, uncontrolled, hopeless foci of infection. Among its useful activities is the institution of the "Free Examination Day," held from time to time throughout the year. The Dispensary has received many cases as a result of these examinations.

Quite a number of cases have been referred to our clinic from the general Dispensary. Social workers have brought many patients for examination. By the united efforts of organizations and individuals, we hope, in the future, to get in touch with a larger number of tuberculous cases.

I wish to express my appreciation of the hearty co-operation of the former Superintendent of the general Dispensary, Dr. James H. Smith, and of the present incumbent, Dr. Howard Urbach, who have contributed every facility at their command for the accommodation of the Tuberculosis Dispensary. I wish to express my especial appreciation of the indispensable assistance of my efficient and accommodating associate, Dr. R. S. Bosher, Jr.

The appended table of summaries gives a detailed account of the Dispensary work, month by month.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,
Chief of Clinic.

REPORT OF COLORED TUBERCULOSIS DISPENSARY FOR THE YEAR ENDING DECEMBER 31, 1917.

MONTH	SEX		AGE			STAGE OF TREATMENT			DIAGNOSIS			SPUTUM REPORT			WEIGHT			No. OF VISITS		CONDITION					NO LONGER UNDER TREATMENT					
																												Referred		
1917	Male	Female	Under 20 years	20-40 years	Over 40 years	New patient	Old patient	Discharged	Tubercular	Non-tubercular	Undetermined	Positive	Negative	Not examined	Increased	Stationary	Diminished	To dispensary	By nurse	Disease arrested	Improved	Unimproved	Progressive	Died	No case	Left city	Lost sight of	To other dispensar's	To private physician	To sanitorium
January	11	12	6	11	6	2	21	0	14	0	9	11	9	3	10	8	3	40	46	0	8	11	3	1	0	0	0	0	0	0
February	13	8	6	12	3	3	18	0	11	1	9	9	10	2	3	7	7	35	85	0	4	15	1	1	0	0	0	0	0	0
March	8	14	9	9	4	4	18	0	12	0	10	7	12	13	6	11	3	38	74	0	5	15	2	0	0	0	0	0	0	0
April	10	15	7	12	6	6	19	0	14	2	9	10	11	4	12	6	2	42	65	0	5	19	1	0	0	0	0	1	0	0
May	9	13	5	11	6	4	18	0	14	1	7	9	9	4	6	5	7	39	59	0	5	12	2	3	0	0	0	0	0	1
June	9	14	4	13	6	5	18	0	10	2	11	6	13	4	4	8	10	42	64	0	6	13	4	0	0	0	0	0	0	0
July	7	13	4	10	6	9	11	0	8	1	11	4	9	7	1	6	5	30	52	0	2	14	4	0	0	1	0	0	0	1
August	8	7	3	10	2	4	11	0	6	1	8	4	8	3	2	4	7	24	41	0	8	6	0	1	0	0	0	1	0	0
September	8	10	3	12	3	3	15	0	6	2	10	4	9	5	9	4	4	32	52	0	10	7	1	0	1	0	0	1	0	0
October	11	13	6	16	2	5	19	0	10	2	12	5	11	8	10	10	3	40	252	0	7	16	1	0	0	0	0	2	0	0
November	12	13	4	17	4	8	17	0	8	2	15	4	13	8	6	12	3	50	36	0	12	11	2	0	0	0	0	0	0	1
December	10	12	5	14	3	4	18	0	9	0	13	5	14	3	9	9	1	33	57	0	9	12	1	0	0	0	0	1	0	0
Total						57				14								445	883					6	1	1	0	6	0	3

REPORT OF DISTRICT PHYSICIAN, FIRST DISTRICT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the First District for six months and a half, beginning June 15 and ending December 31, 1917.

Number of visits, white	790
Number of visits, colored	572
Total number of visits	1,362
Number of white patients	348
Number of colored patients	253
Total number of patients	601
Number of patients, male	173
Number of patients, female	428
Total number of patients	601
Number of deaths, white	2
Number of deaths, colored	1
Total number of deaths	3
Number of patients sent to the City Home	20
On hand December 31, 1917	10

Respectfully submitted,

H. C. RUCKER,
District Physician, No. 1.

REPORT OF DISTRICT PHYSICIAN, SECOND DISTRICT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the Second District for the year ending December 31, 1917.

Number of visits, white	468
Number of visits, colored	467
Total number of visits	935
Number of white patients	216
Number of colored patients	232
Total number of patients	448
Number of patients, male	149
Number of patients, female	299
Total number of patients	448
Number of deaths, white	0
Number of deaths, colored	4
Total number of deaths	4
Number of patients sent to the City Home	13
On hand December 31, 1917	10

Respectfully submitted,

B. L. PHILLIPS,
District Physician.

REPORT OF DISTRICT PHYSICIAN, THIRD DISTRICT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the Third District for the year ending December 31, 1917.

Number of visits, white	140
Number of visits, colored	362
Total number of visits	502
Number of white patients	62
Number of colored patients	209
Total number of patients	271
Number of patients, male	72
Number of patients, female	199
Total number of patients	271
Number of deaths, white	0
Number of deaths, colored	6
Total number of deaths	6
Number of patients sent to the City Home and Virginia Hospital	44
On hand December 31, 1917	1

Respectfully submitted,
EDWARD McCARTHY, M. D.,
District Physician.

REPORT OF DISTRICT PHYSICIAN, FOURTH DISTRICT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the Fourth District for the year ending December 31, 1917.

Number of visits, white	316
Number of visits, colored	3,801
Total number of visits	4,117
Number of white patients	218
Number of colored patients	2,983
Total number of patients	3,201
Number of patients, male	1,015
Number of patients, female	2,186
Total number of patients	3,201
Number of deaths, white	0
Number of deaths, colored	7
Total number of deaths	7
Number of patients sent to the City Home and Virginia Hospital	53
On hand December 31, 1917	6

Respectfully submitted,

L. D. BATKINS,
District Physician.

REPORT OF DISTRICT PHYSICIAN, FIFTH DISTRICT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the Fifth District for the year ending December 31, 1917.

Number of visits, white	1,039
Number of visits, colored	179
Total number of visits	1,218
Number of white patients	615
Number of colored patients	149
Total number of patients	764
Number of patients, male	225
Number of patients, female	539
Total number of patients	764
Number of deaths, white	3
Number of deaths, colored	0
Total number of deaths	3
Number of patients sent to the City Home	72
On hand December 31, 1917	3

Respectfully submitted,

J. W. SLOAN,
District Physician.

REPORT OF DISTRICT PHYSICIAN, SIXTH DISTRICT.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as District Physician of the Sixth District for the year ending December 31, 1917.

Number of visits, white	2,250
Number of visits, colored	1,233
Total number of visits	3,483
Number of white patients	878
Number of colored patients	598
Total number of patients	1,476
Number of patients, male	478
Number of patients, female	998
Total number of patients	1,476
Number of deaths, white	4
Number of deaths, colored	5
Total number of deaths	9
Number of patients sent to the City Home	19
On hand December 31, 1917	4
Sent to Virginia Hospital	6
Sent to Pine Camp	4

Respectfully submitted,

E. T. RUCKER,
District Physician.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Chief Sanitary Officer for the months of January, February, March, April, May, June and July, 1917.

Summons served	5
Cases in court	9
Old plumbing repaired	75
Dry closets inspected	642
Dry closets ordered cleaned and drained	15
Closet boxes ordered in and houses repaired	79
New dry closets ordered	11
Sewer connections ordered	17
Rain conductors, gutters and roofs ordered repaired	7
Visits for Plumbing Inspector	5
Yards ordered cleaned	26
Vacant lots inspected and ordered cleaned	11
Cellars ordered cleaned and drained	1
Alleys ordered cleaned	3
Old wells inspected—ordered cleaned and repaired	1
Old wells condemned and ordered filled	1
Contagious diseases cards put up	19
Premises inspected	850
Premises revisited	404
Agents, owners and plumbers visited	67
Miscellaneous visits and orders	62
City water ordered on premises	14
Nuisances abated	104
Stables inspected	73
Stables ordered repaired and cleaned	16
Total number of visits	1,371

Respectfully submitted,

W. T. TUCK,
Chief Sanitary Officer.

REPORT OF THE CHIEF SANITARY OFFICER.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith the report of the Chief Sanitary Officer for the year ending December 31, 1917. This report covers the work done by my predecessor, Mr. W. T. Tuck, during the first seven months of the year, ending July 31, 1917, and my own work for the last five months.

The figures in the tables following were compiled monthly, being taken from the monthly reports of the Chief Sanitary Officer. They include the work of seven Sanitary Officers and that of Special Officer John Donati, who worked on dry closet inspection two months of the past summer and who was put on sanitary inspections again in October, to be retained until January 15, 1918. I hope you will recommend Mr. Donati's permanent appointment as a Sanitary Officer, since he has proven himself a valuable and efficient worker.

I take this opportunity of thanking the Administrative Board for my promotion to the position of Chief Sanitary Officer. Mr. M. W. Lawrence, appointed to fill my former place, has proven to be a capable Sanitary Officer.

Since my appointment as Chief, the sanitary force has been entirely reorganized. Before I took charge, there were five officers, including the Chief Sanitary Officer, attending to complaints. The three others of the force were on stable inspection and dry closet work. One of the men, Mr. R. R. Wrenn, has now been provided with a Ford automobile and, with my assistance and by sometimes working overtime, all complaints are answered by us, thus releasing the rest of the force for detailed work in their districts.

The city has been divided into seven sanitary districts, with an inspector for each district, who makes routine house-to-house inspections. The inspections of the sanitary force have increased from 12,702 during the first quarter of the year to 18,314 during the last quarter. (See tables following.)

All disease notices are now placarded by the Complaint Officer and myself. One or the other of us is on duty for this work part of the day each Sunday. Sanitary Officer J. T. Gill has been transferred to the food division. Fumigating Officer J. F. Waller has been transferred to the sanitary force and has made good in that position. The Fumigating Officer formerly delivered school release notices and removed disease cards. Since his removal, this duty has been added to that of the Sanitary Officers. I would respectfully recommend the mailing of school releases, with proper directions for cleaning and with permission to remove disease cards.

The location of several of the culture stations has been changed. The present locations are much more convenient to the physicians and to the public in general.

I would like to have your permission to concentrate the whole sanitary force, with the exception of the Complaint Officer, on fly work this spring. By doing this, I believe it will be possible to have every dry closet and stable visited and corrected in a very short time. This work should be continued. by a sufficient number of inspectors, until the end of fly time. I am also of the opinion that the maggot trap should be recommended for the small stables having one or two animals, since these stables give us the most trouble.

The stagnant water nuisance was the source of hundreds of complaints last summer. These complaints came mostly from newly annexed territory where there are no sewers. When such complaints were received and where the pools were found to breed mosquitoes, they were promptly oiled as an emergency measure, until such time as more permanent measures for complete abatement could be taken.

As my predecessor has said in his 1916 report, the weed ordinance is certainly troublesome, and I would recommend that where complaint is made of vacant lots on which are harmless weeds that the Sanitary Officers be instructed not to require said weeds to be removed. Trouble in finding owners of vacant lots has necessitated calling repeatedly upon the Richmond Real Estate Exchange, and, since we cannot expect this service of them without compensation, some arrangements should be made whereby we can get this information.

I respectfully suggest that you recommend a more rigid enforcement of the ordinance providing for the protection of water pipes from freezing. The cold weather this December has demonstrated that this ordinance has not been enforced, since many pipes have burst because of neglect of proper protection.

I beg to call your attention to the many families who are living in houses which are totally unfit for human habitation. I believe that an ordinance should be passed giving the Chief Health Officer power to declare such houses unfit for people to live in, with power to have them vacated.

Permit me to say, before closing my report, that every man in my division has co-operated with me in trying to get better results in sanitary inspection. I have also had the hearty co-operation of the Plumbing Inspector and his assistant. An increase in salary has been recommended for the Sanitary Officers, and I would like very much to see the Council act favorably upon this, as the best work cannot be expected continually from poorly paid officers.

Respectfully submitted,

W. A. BOWRY,

Chief Sanitary Officer.

Repor of Chief Sanitary Officer W. T. Tuck for the first Seven Months of 1917 and of Chief Sanitary Officer W. A: Bowry for the Remaining Five Months of 1917.

	January	February	March	April	May	June	July	Total 7 Months	August	September	October	November	December	Total 5 Months	Total for Year
Summons served	33	9	17	44	18	20	9	150	15	14	5	4	3	41	191
Cases in court	26	14	23	148	37	28	13	289	8	24	11	3	1	47	336
Old pumbing repaired	151	202	154	178	152	204	246	1287	368	278	825	731	294	2496	3783
Dry closets inspected	776	800	845	1081	919	930	602	5953	789	392	248	67	335	1831	7784
Dry closets ordered cleaned and destroyed	32	2	29	7	12	28	39	149	80	4	6	20	0	110	259
Closet boxes ordered in and houses repaired	117	203	86	205	143	200	158	1112	248	81	42	35	22	428	1540
New dry closets ordered	9	42	3	16	11	5	2	88	19	6	3	2	1	31	119
Sewer connections ordered	28	19	49	1	3	2	5	107	2	19	2	18	0	41	148
Rain conductors, gutters and roofs ordered repaired	11	6	24	12	9	6	18	86	10	26	34	28	12	110	196
Visits for plumbing inspector	3	4	5	2	0	1	0	15	12	30	2	0	0	44	59
Yards ordered cleaned	238	242	225	4	181	238	213	1341	252	226	396	262	111	1247	2588
Vacant lots inspected and ordered cleaned	6	5	3	10	2	16	228	270	81	48	4	5	1	139	409
Cellars ordered cleaned and drained	0	1	10	7	6	16	19	59	24	9	4	3	3	43	102
Alleys ordered cleaned	40	16	17	30	41	57	90	291	38	19	42	5	8	112	403
Old wells inspected—ordered cleaned and repaired	2	6	5	14	14	2	26	69	15	34	27	26	4	106	175
Old wells condemned and ordered filled	21	2	5	1	0	12	7	48	6	2	7	33	1	49	97
Contagious disease cards put up	85	227	406	294	181	51	27	1271	38	72	89	68	58	325	1596
City water ordered on premises	45	31	27	37	56	44	27	267	58	29	136	120	32	375	642
Nuisances	140	160	208	185	161	204	178	1236	64	66	97	62	25	314	1550
Stables inspected	649	678	645	509	438	1322	251	4492	20	24	42	32	75	193	4685
Stables ordered repaired and cleaned	129	97	133	127	207	176	220	1089	5	7	18	19	43	92	1181
* * * * *															
Premises inspected	953	1331	1007	1282	1255	1128	1524	8480	1862	1797	4288	3671	1996	13614	22094
Premises revisited	2471	1816	2739	2281	1771	2509	1213	14800	1109	1181	1071	1695	1742	6798	21598
Agents, owners, and plumbers visited	567	498	592	624	624	542	604	4051	550	587	909	1062	680	3788	7839
Miscellaneous visits and orders	263	222	243	263	331	307	254	1883	383	462	444	288	288	1865	3748
Total number of visits	4254	3867	4581	4450	3981	4486	3595	29214	3904	4027	6712	6716	4706	26065	55279

In addition to my work as Chief Sanitary Officer, the following detail work was also done by me during the months of August, September, October November, and December, 1917:

Summons served	2
Cases in court	7
Old plumbing repaired	108
Dry closets inspected	49
Dry closets ordered cleaned and destroyed	3
Closet boxes ordered in and houses repaired	3
New dry closets ordered	0
Sewer connections ordered	4
Rain conductors, gutters and roofs ordered repaired	11
Visits for plumbing inspector	0
Yards ordered cleaned	34
Vacant lots inspected and ordered cleaned	14
Cellars ordered cleaned and drained	7
Alleys ordered cleaned	12
Old wells inspected—ordered cleaned and repaired	22
Old wells condemned and ordered filled	4
Contagious disease cards put up	132
Premises inspected	641
Premises revisited	404
Agents, owners and plumbers visited	160
Miscellaneous visits and orders	400
City water ordered on premises	20
Nuisances abated	61
Stables inspected	12
Stables ordered repaired and cleaned	3
Total number of visits	1,605

Respectfully submitted,

W. A. BOWRY, Chief Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the months of January, February, March, April, May, June and July, 1917.

Summons served	28
Cases in court	20
Old plumbing repaired	427
Dry closets inspected	38
Dry closets ordered cleaned and destroyed	59
Closet boxes ordered in and houses repaired	1
New dry closets ordered	1
Sewer connections ordered	56
Rain conductors, gutters and roofs ordered repaired	24
Visits for Plumbing Inspector	28
Yards ordered cleaned	115
Vacant lots inspected and ordered cleaned	25
Cellars ordered cleaned and drained	27
Alleys ordered cleaned	33
Old wells inspected—ordered cleaned and repaired	4
Old wells condemned and ordered filled	31
Contagious disease cards put up	461
Premises inspected	1,544
Premises revisited	1,252
Agents, owners and plumbers visited	625
Miscellaneous visits and orders	304
City water ordered on premises	136
Nuisances abated	163
Stables inspected	2
Stables ordered repaired and cleaned	2
Total number of visits	3,725

Respectfully submitted,

W. A. BOWRY,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the year ending December 31, 1917.

Summons served	28
Cases in court	25
Old plumbing repaired	758
Dry closets inspected	46
Dry closets ordered cleaned and destroyed	0
Closet boxes ordered in and houses repaired	0
New dry closets ordered	0
Sewer connections ordered	0
Rain conductors, gutters and roofs ordered repaired	0
Visits for Plumbing Inspector	0
Yards ordered cleaned	663
Vacant lots inspected and ordered cleaned	34
Cellars ordered cleaned and drained	12
Alleys ordered cleaned	252
Old wells inspected—ordered cleaned and repaired	0
Old wells condemned and ordered filled	0
Contagious disease cards put up	323
Premises inspected	4,133
Premises revisited	1,265
Agents, owners and plumbers visited	1,549
Miscellaneous visits and orders	492
City water ordered on premises	52
Nuisances abated	512
Stables inspected	1
Stables ordered repaired and cleaned	1
Total number of visits	7,461

Respectfully submitted,

W. H. MOSLEY,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the year ending December 31, 1917.

Summons served	4
Cases in court	33
Old plumbing repaired	265
Dry closets inspected	572
Dry closets ordered cleaned and destroyed	11
Closet boxes ordered in and houses repaired	148
New dry closets ordered	3
Sewer connections ordered	3
Rain conductors, gutters and roofs ordered repaired	24
Visits for Plumbing Inspector	0
Yards ordered cleaned	12
Vacant lots inspected and ordered cleaned	1
Cellars ordered cleaned and drained	0
Alleys ordered cleaned	0
Old wells inspected—ordered cleaned and repaired	8
Old wells condemned and ordered filled	17
Contagious disease cards put up	147
Premises inspected	1,709
Premises revisited	2,462
Agents, owners and plumbers visited	1,100
Miscellaneous visits and orders	537
City water ordered on premises	3
Nuisances abated	400
Stables inspected	25
Stables ordered repaired and cleaned	25
Total number of visits	5,777

Respectfully submitted,

W. A. CRUMP,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the year ending December 31, 1917.

Summons served	5
Cases in court	9
Old plumbing repaired	146
Dry closets inspected	6,193
Dry closets ordered cleaned and destroyed	143
Closet boxes ordered in and houses repaired	1,231
New dry closets ordered	97
Sewer connections ordered	20
Rain conductors, gutters and roofs ordered repaired	18
Visits for Plumbing Inspector	0
Yards ordered cleaned	1,329
Vacant lots inspected and ordered cleaned	10
Cellars ordered cleaned and drained	1
Alleys ordered cleaned	2
Old wells inspected—ordered cleaned and repaired	51
Old wells condemned and ordered filled	22
Contagious disease cards put up	8
Premises inspected	3,579
Premises revisited	4,162
Agents, owners and plumbers visited	449
Miscellaneous visits and orders	43
City water ordered on premises	78
Nuisances abated	8
Stables inspected	9
Stables ordered repaired and cleaned	7
Total number of visits	8,233

Respectfully submitted,

S. A. HALL,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the months of January, February, March, April and May, 1917.

Summons served	17
Cases in court	32
Old plumbing repaired	38
Dry closets inspected	9
Dry closets ordered cleaned and destroyed	4
Closet boxes ordered in and houses repaired	7
New dry closets ordered	6
Sewer connections ordered	30
Rain conductors, gutters and roofs ordered repaired	29
Visits for Plumbing Inspector	3
Yards ordered cleaned	15
Vacant lots inspected and ordered cleaned	11
Cellars ordered cleaned and drained	8
Alleys ordered cleaned	9
Old wells inspected—ordered cleaned and repaired	22
Old wells condemned and ordered filled	0
Contagious disease cards put up	309
Premises inspected	488
Premises revisited	673
Agents, owners and plumbers visited	563
Miscellaneous visits and orders	165
City water ordered on premises	69
Nuisances abated	138
Stables inspected	4
Stables ordered repaired and cleaned	0
Total number of visits	1,889

Respectfully submitted,

JNO. T. GILL,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the year ending December 31, 1917.

Summons served	34
Cases in court	73
Old plumbing repaired	348
Dry closets inspected	91
Dry closets ordered cleaned and destroyed	4
Closet boxes ordered in and houses repaired	24
New dry closets ordered	1
Sewer connections ordered	12
Rain conductors, gutters and roofs ordered repaired	29
Visits for Plumbing Inspector	13
Yards ordered cleaned	89
Vacant lots inspected and ordered cleaned	96
Cellars ordered cleaned and drained	15
Alleys ordered cleaned	13
Old wells inspected—ordered cleaned and repaired	25
Old wells condemned and ordered filled	4
Contagious disease cards put up	94
Premises inspected	1,186
Premises revisited	4,469
Agents, owners and plumbers visited	841
Miscellaneous visits and orders	541
City water ordered on premises	70
Nuisances abated	35
Stables inspected	3,757
Stables ordered repaired and cleaned	564
Total number of visits	7,037

Respectfully submitted,

R. R. WRENN,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the year ending December 31, 1917.

Summons served	70
Cases in court	124
Old plumbing repaired	463
Dry closets inspected	29
Dry closets ordered cleaned and destroyed	15
Closet boxes ordered in and houses repaired	1
New dry closets ordered	0
Sewer connections ordered	3
Rain conductors, gutters and roofs ordered repaired	3
Visits for Plumbing Inspector	37
Yards ordered cleaned	189
Vacant lots inspected and ordered cleaned	183
Cellars ordered cleaned and drained	10
Alleys ordered cleaned	44
Old wells inspected—ordered cleaned and repaired	5
Old wells condemned and ordered filled	15
Contagious disease cards put up	61
Premises inspected	2,156
Premises revisited	3,178
Agents, owners and plumbers visited	972
Miscellaneous visits and orders	776
City water ordered on premises	31
Nuisances abated	98
Stables inspected	66
Stables ordered repaired and cleaned	338
Total number of visits	7,089

Respectfully submitted,
T. M. LANDERS, JR.,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the months of August, September, October, November and December, 1917.

Summons served	2
Cases in court	3
Old plumbing repaired	346
Dry closets inspected	49
Dry closets ordered cleaned and destroyed	2
Closet boxes ordered in and houses repaired	3
New dry closets ordered	0
Sewer connections ordered	2
Rain conductors, gutters and roofs ordered repaired	39
Visits for Plumbing Inspector	1
Yards ordered cleaned	330
Vacant lots inspected and ordered cleaned	18
Cellars ordered cleaned and drained	25
Alleys ordered cleaned	54
Old wells inspected—ordered cleaned and repaired	5
Old wells condemned and ordered filled	3
Contagious disease cards put up	33
Premises inspected	1,714
Premises revisited	831
Agents, owners and plumbers visited	563
Miscellaneous visits and orders	414
City water ordered on premises	78
Nuisances abated	30
Stables inspected	13
Stables ordered repaired and cleaned	22
Total number of visits	3,522

Respectfully submitted,

M. W. LAWRENCE,

Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the months of June, July, August, September, October, November and December, 1917.

Summons served	0
Cases in court	0
Old plumbing repaired	431
Dry closets inspected	46
Dry closets ordered cleaned and destroyed	0
Closet boxes ordered in and houses repaired	17
New dry closets ordered	0
Sewer connections ordered	1
Rain conductors, gutters and roofs ordered repaired	9
Visits for Plumbing Inspector	0
Yards ordered cleaned	8
Vacant lots inspected and ordered cleaned	0
Cellars ordered cleaned and drained	0
Alleys ordered cleaned	0
Old wells inspected—ordered cleaned and repaired	0
Old wells condemned and ordered filled	0
Contagious disease cards put up	9
Premises inspected	2,763
Premises revisited	1,791
Agents, owners and plumbers visited	372
Miscellaneous visits and orders	86
City water ordered on premises	25
Nuisances abated	0
Stables inspected	849
Stables ordered repaired and cleaned	17
Total number of visits	5,012

Respectfully submitted,

JAS. F. WALLER,
Sanitary Officer.

Dr. Roy K. Flannagan,
Chief Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my report as Sanitary Officer for the months of October, November and December, 1917.

Summons served	0
Cases in court	0
Old plumbing repaired	358
Dry closets inspected	10
Dry closets ordered cleaned and destroyed	3
Closet boxes ordered in and houses repaired	17
New dry closets ordered	0
Sewer connections ordered	1
Rain conductors, gutters and roofs ordered repaired	1
Visits for Plumbing Inspector	0
Yards ordered cleaned	40
Vacant lots inspected and ordered cleaned	3
Cellars ordered cleaned and drained	0
Alleys ordered cleaned	2
Old wells inspected—ordered cleaned and repaired	32
Old wells condemned and ordered filled	0
Contagious disease cards put up	0
Premises inspected	1,302
Premises revisited	812
Agents, owners and plumbers visited	485
Miscellaneous visits and orders	30
City water ordered on premises	50
Nuisances abated	0
Stables inspected	39
Stables ordered repaired and cleaned	22
Total number of visits	2,629

Respectfully submitted,

JOHN A. DONATI,

Sanitary Officer.

COPY.

Richmond, Va., February 12, 1917.

Mr. E. E. Davis,
Superintendent of City Water Works,
Richmond, Va.

Dear Sir:

I submit herewith the annual report of the settling basins and laboratory for the year 1917.

Regular examinations of the raw, stored, coagulated, chlorinated, reservoir and stand-pipe water have been made throughout the year. Samples collected were examined for turbidity, color, alkalinity and total bacteria count, and the "Presumptive Test" in Lactose Bile for Bacillus coli was made.

The mud was washed out of the coagulating basins in August. Data in detail showing the process is not available at the basins, as another department helped to do the work.

Two Chlorinators and a Pintsch gas outfit were installed during the year.

All empty barrels were sold in Richmond at the highest obtainable price.

The water plant has been very successfully operated during the year.

Analytical results, with data in detail not shown in this report, are kept on file in the laboratory.

Yours very respectfully,
(Signed) F. O. BALDWIN,
Director of Settling Basins and Laboratory.